The Restoration of Confidence

SLOWLY, surely and effectively, the business conditions of the country are being consolidated basically for the reconstruction period.

General Business has entered the period of convalescence. The General has been a very sick body—his life has even been despaired of by many people. However, while far from being a well man, yet the crisis in his long and critical illness has been passed, and a total recovery can now be confidently predicted.

This is the gist of the bulletins given out by the expert economical doctors in charge of the patient, and from our close contact with an observation of the case, we believe the above diagnosis is worthy of credence.

However, this does not mean that General Business may not have small relapses now and then, and especially within the immediate future. They are to be expected in any convalescent period.

Since the turn of the year, three outstanding remedial factors have appeared, any one of which is calculated to inspire hope of final recovery, but taken together, they eliminate any and every lurking doubt thereof.

The first factor is, that the senseless, confidence-scuttling and fear-generating liquidation of security and commodity values is at an end. It has come to an end because it cannot very well go any further.

When one who is full of fear rushes headlong down the street which happens to be a stub end blocked by a stone wall, or mayhap a road which leads to the brink of an abyss both wide and deep, one just naturally stops, and during the pause while he contemplates the certainty of the disaster ahead, finds that the menace he was fleeing from has disappeared; he just as naturally turns about and begins to retrace his steps.

That is what has happened to the liquidation fear. We believe that it has been well-nigh cleaned up and that we are beginning the trek back to normal values and confidence in them again.

The second factor is the creation of the $2,000,000,000 Reconstruction Finance Corporation and the recall of General Charles G. Dawes from England, to head it up.

The funds of this corporation are to be used to aid banks, railways, financial institutions, real estate mortgage situations and like problems. The country at large is as yet without the detail operations of this corporation, but on the other hand, the people have supreme confidence in General Dawes. They know that Charles G. Dawes is a man of constructive action. When backed with $2,000,000,000 to carry constructive plans through, there will be a reconstruction of the credit facilities of the country and they will be given an immediate forward impulse. This will be a confidence restorer of the first magnitude.

We will not be surprised to read very shortly an announcement to the country made by General Dawes that there will be no more bank failures, and that the frozen assets of the closed banks will be thawed out forthwith. Then watch the hoarded money, of which it is estimated there is about one billion dollars, come pouring back into circulation.

Then, the third constructive factor is a big one. It is the voluntary acceptance by the railroad unions of a 10 per cent cut in their wages for a year.

This is the handsomest piece of forward constructive work done in a decade. It is the first time on record that capital and labor en masse have sat down together, each side considering each other's problems, and in a spirit of justice, equity and amity, and without the

aid of a third party or resorting to arbitration, have come to a just conclusion accepted unanimously by both sides. What is more significant is that it squares in exactly to the unanimous opinion of the whole country as to what constitutes a righteous solution.

What a decision!

That decision has saved the railroads, exalted the labor unions, and solidified the nation. It is the most significant act of common sense since the signing of Magna Charta.

And, there you have the three great confidence restoratives all given to us in the first opening month of the year 1932. Take a big dose of each—or all of them—then put on your specks and see if the outlook for 1932 does not look better to you.

Conflicting Interests

It would appear from a very informing review of the woodpulp situation, which is a feature of the latest issue of *Pulpwood*, a publication of the Pulpwood Department of the American Paper and Pulp Association, that producers of woodpulp on the one hand and consumers of pulp on the other are apart in their views concerning equalization of commodity values on products coming from countries of depreciated currency. Since the depreciation in value of currency in the countries from which pulp is chiefly imported, offerings of pulp from these countries have been freer and at lower prices, a circumstance which has told adversely on domestic pulp producing companies. Conversely, pulp purchasing companies are in a position to benefit by any decline in values of foreign pulps, and as they represent about 35 per cent of the gross tonnage of American woodpulp paper production, they feel that they are entitled to a voice in the matter, their case being quite different from that of paper manufacturers, other than newsprint companies, who are naturally interested in the maintenance of tariff duties on manufactured paper products. At the same time, some dissatisfaction exists among consumers of pulp with regard to the wide fluctuations in pulp prices and their reflection in paper prices, all of which is interestingly brought out in the review referred to.

The influence of competition from foreign newsprint paper sources in countries that have gone off the gold standard has always been felt seriously by North American producers of this grade of paper whose operations are confined to this continent, while others whose operations are not wholly confined to the national boundaries are affected at the same time both advantageously and adversely, their interest lying where the advantage is greatest. It will be seen that on only one subject of tariff interest is there substantial agreement in the industry and that is as regards dutiable paper products, and United States producers of paper are as one in the feeling that the agreed rates of duty should be protected from the influence of depreciated currencies.

The Pulpwood Department of the American Paper and Pulp Association takes no stand on the questions at issue, but merely states the problem. Though pulp purchasing mills are operated in many parts of the country, they are largely concentrated in the Eastern seaboard regions and adjacent to centers of large consumption. It is easy to understand why the American Paper and Pulp Association can take no definite stand until the matter is threshed out in the industry, seeing that it numbers in its membership substantial groups of both self-contained and purchasing mills. The association is, however, in a position to facilitate composition of group differences of opinion by affording all groups an opportunity for discussion, while at the same time throwing open to them the resources of information made possible by the work of its statistical staff.

As already indicated, the inherent problems of the present difficulty are of a complex nature, but because the current difficulties center in pulpwood and woodpulp conditions which come properly within its sphere of activities, the American Paper and Pulp Association should be in a position to clarify the situation, and much may be expected from the light which may be thrown upon it in discussions at the annual meeting now in progress.

Honoring a Chemist

It is a rare thing for a chemist or any other scientist to receive during his lifetime such a high tribute of admiration as is paid by the *New York Times* in an editorial article published in the issue of January 26 to Dr. Charles Holmes Herty, one-time editor of the *Journal of Industrial and Engineering Chemistry* and a former president of the American Chemical Society. The American Institute of Chemists has awarded to Doctor Herty its annual gold medal for noteworthy and outstanding service to the science and profession of chemistry, and the *New York Times* improves the opportunity to call attention, in the course of a well-merited eulogy, to Doctor Herty's contributions to the public welfare. It is thus brought out that Doctor Herty's

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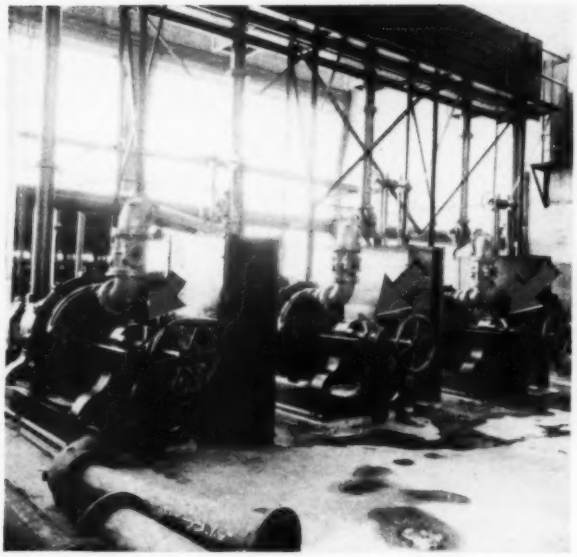

The three Dodge-Timken equipped Jordans shown in the picture are installed in a Pacific Coast Mill. They are typical of many new as well as old Jordans that have clearly proved the superiority of Dodge-Timken Bearings for this service. Longer life for plug filling, permanent alignment preventing settling of shaft and plug, elimination of lubrication troubles—these are only a few advantages that mean traceable and substantial savings.

You can effect worth while operating economies in 1932 by checking up on your drive and bearing equipment. We can co-operate with you in laying out a profitable program which can in many cases be taken care of out of maintenance budgets.

A Dodge engineer, who knows paper and pulp mill applications, is ready to help you. It will pay you to get his recommendations NOW.

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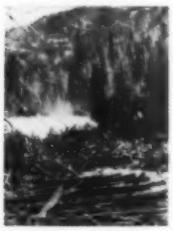
career as a chemist has been marked by great benefit to the industries of the Southland from which he hails. Professor Nims in his *Advancing South* estimated several years ago that Doctor Herty's contributions to research work in the turpentine industry of his native State of Georgia had added more than $10,000,000 of annual value to that industry. But then, as the *Times* so well states it, his life as a chemist has been devoted to relating his every scientific act to the general welfare.

Doctor Herty has turned his attention again to the southern forests in studying methods of utilizing slash pine in the manufacture of pulp and paper, an enterprise in which he has received the support both of the legislature of the State of Georgia and the Chemical Foundation of New York. He has gathered round him men of recognized ability in the field of pulp and paper manufacture to assist him in his work, and the outcome of his study and investigations will no doubt be seen in a further development of the pulp and paper industry in the southern states.

It must be particularly pleasing to all of Doctor Herty's friends and acquaintances to see him get such public recognition and honor while he is still among them.

THE BUSINESS JAM IS BREAKING



"The business man who makes an intensive merchandising and advertising campaign in 1932 can break the dam which has been holding up the growing consumer demand of the 40,000,000 gainfully employed in this country," said Gilbert T. Hodges, president of the Advertising Federation of America in an address before members of the advertising council of the Association of Commerce in Chicago.

Pointing out the futility of waiting for a legislative miracle or for some Moses to lead business out of the wilderness, the federation head declared that those who wait for outside help will stagnate, while those who step out and help themselves will not only make money but help make better times for everybody.

Forty Million Need Goods—"The forty million people still at work will soon be forced to replace the goods they have worn out," he said. "Consumers who have been postponing the purchase of necessaries and luxuries, through fear rather than lack of means, are about at the end of their rope. The principle of obsolescence has been getting in its work. Our clothes have become threadbare. Our automobiles are beginning to rattle. Our radios are out of date. Our furniture is getting shabby and our houses need paint."

With dealers' shelves and warehouses holding scanty stocks, factories will find it necessary to speed up to turn out the required goods, Mr. Hodges asserted. It is up to the individual company and business man to create new business and make new markets, he added.

There are evidences all around us of individuals and firms that made money in 1931 by going out and getting orders, where to most of us it seemed there were no orders, and by changing methods or products—by having something better to sell than competitive firms. Times and conditions are changing; old methods will not do in many cases. It is useless in times like these to ask that some Sweet Chariot Swing Low. The vehicle of hard thinking and hard working must be employed as never before.

An interesting article appeared in the January issue of THE PAPER INDUSTRY, pages 1207-9, showing how one mill made a profit by changing the product—producing something new and different.

We cannot break a jam, whether it be of logs or general business conditions, by wishing. It needs hard work and a lot of thinking and planning, but it can be done.

There are many evidences of an improvement in conditions in our industry during the past few weeks. Many mills have reported better conditions, and this along with a rise in prices indicate that the jam has at last been broken, and that the decayed logs of poor business, fear and discouragement will soon be floating down the stream to the ocean of oblivion, and those of good fiber will be filling the mill dam, ready to take their turn through the processes of the plant, to be turned into endless streams of a pure product, which will mean steady work at good wages for the employee and a profit for the manufacturer, converter and dealer. This will mean new equipment for the mills, orders for the machinery manufacturers, and all will be well again.

But only those that think and work will profit.

YOUR MENTAL VOLITION

The real thing we want is not knowledge, but resourcefulness. How can resourcefulness be acquired? Is it pumping information into a man? Not at all! There is only one thing which will really train the human mind and that is the voluntary use of the mind by the man himself. You may aid him, you may guide him, you may suggest to him, and above all you may inspire him, but the only thing worth having is that which he gets by his own exertions and what he gets is proportionate to the effort he puts into it. It is the voluntary exercise of his own mind.—A. Lawrence Lowell, President, Harvard University.

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THE PAPER INDUSTRY
A MONTHLY EDUCATIONAL JOURNAL

RECONSTRUCTION—the Keynote for 1932

The Curtain Rises on the Last Act

By WILLIAM SIBLEY
Staff Writer of Current Thought

THE World War is now in its eighteenth year. It has been a hard and costly fight but the last act is now commencing.

With the armistice, the soldiers quit and gave the stage to the statesmen of the world who willingly took the spotlight and carried on the fight for several years. Then the statesmen turned the battle over to the leading financiers of the various nations, who, during the course of the third act, kept the contest alive until they had well-nigh exhausted their world audience by bringing about a condition of virtual bankruptcy. These apostles of drastic deflation, through the two years of their act, inflicted upon us the will of the banking minority to a point where the conclusion is not only distressing but fraught with extreme danger.

Now the curtain is rising on the fourth and last act of this protracted and costly drama, with national industrial leaders and foresighted commercial men as the principal players. The players now on the stage are men who realize the truth that just because a rapid inflation creates a multitude of evils, there is no good reason for believing that an equally extreme movement in the opposite direction must become a national blessing. They are men who appreciate that means for increasing efficiency, cutting costs, reducing wages, and similar economy measures are desirable only within the bourne of reason. Beyond that point, and practised without discrimination, they realize the vicious circle of deflation can be as brutal as inflation. These players know that when they cut their costs beyond a given point they also curtail their markets correspondingly.

Reckless inflation is bad, but reckless deflation is much more dangerous. This country, rich as it is, was rapidly being laid prostrate by the small army of deflationists and short-sellers. Fortunately, President Hoover, with discerning foresight and the backing of the country's pocket-book established his banking pool in time to save the country from an impending crisis last October. But the bloodletting process of protracted deflation had gone too far. It had paralyzed the business body and brought it to the point of coma where it could not be revived by a single banking pool, with the result that now we are going to change the treatment and administer a blood transfusion of new credit. Uncle Sam is to be the donor, and the medium, the Reconstruction Finance Corporation.

There is no concern over the fundamental soundness of the patient's constitution. American industry is on fundamentally sound footing, but the recent bloodletting deflationism had so paralyzed it that it was incapable of self-help. For instance, only last month, at the Chicago convention of the National Show Retailers, it became known that several manufacturers had sufficient orders to double their production immediately, and could have done so, but for lack of credit facilities. To correct this paralytic condition in industry is the purpose of the Reconstruction Finance Corporation.

The Purpose of the Reconstruction Finance Corporation

The establishment of this corporation and the institution of a two-billion-dollar credit by the United States Government for the use of banks and industrial enterprises involves a radical departure from established policies and ideals, but the time to engage in a lengthy discussion regarding the merits of various extinguishers is not when the house is burning. In such a situation, we instinctively seize upon and utilize whatever methods or means are most available or offer assurance of speediest success. As Henry B. Steagall, chairman

of the House Banking and Currency Committee in Washington, stated: "The Reconstruction Finance Corporation bill represents an extraordinary effort to meet an extraordinary emergency in an extraordinary way."

The outstanding purpose of the legislation which brought the corporation into existence is to rescue banks and industrial enterprises from insolvency. The transfusion of financial credit, through the corporation, is to be made through loans to applicants, when such loans can be "fully and adequately secured," although the collateral may be such that during the present distressed and disorganized condition no immediate realization could be had from any other source.

A Case in Point

Less than seventeen hours after the Reconstruction Finance Corporation bill had been signed by President Hoover, the receivers now in charge of the Wabash Railway Company went before the Federal Court at St. Louis and received permission to apply to the corporation for the loan of $18,500,000. The receivers outlined the uses to which this loan would be put (meet a deficiency in bond interest, pay interest and principal on its equipment trust obligations, pay preferential claims for labor, material and supplies, etc.) and stated frankly that credit extension had been denied them from all other sources. The plan for handling the loan would be an agreement to repay the amount in three years, and to put up as collateral the stocks and bonds owned by the Wabash. Up to the time of this writing, credit to the Wabash Railway Company has not been granted by the corporation. The incident illustrates, however, the purpose and method of operation of the new Reconstruction Finance Corporation enactment.

Of equally great benefit will be the corporation to banks throughout the country. In following rules that have been tested by experience and considered sound, many prudently managed banks have found themselves, at this period of confusion and fear, where they can neither collect nor borrow through established channels —and this at a time when depositors are excited and afraid, and are making constant withdrawals. Since the Federal Reserve System cannot afford relief to such banks, the Reconstruction Corporation will afford a refuge for them. And in affording necessary credit to a host of small banks, fear will largely be dissipated, and an end will be put to bank failures with all their attendant demoralization and distress.

In commenting upon the fact that during 1931 there were 2,290 bank failures in the United States, involving a sum total of deposits approximating $1,800,000,000, Mr. Steagall said: "The relief of banks does not end with institutions that are in operation. The bill provides that loans may be made upon the assets of banks that are closed or in process of liquidation for the purpose of aiding in reorganization or liquidation. . . . In doing this many banks may be restored which otherwise would be a total loss to and a serious drain upon their respective communities.

"Situations will be found in many instances where depositors stand ready to invest in the capital of a bank if only they can realize upon their deposits now frozen. . . . The relief that may be extended in this way should be of great benefit in restoring credit, reviving confidence and stimulating a renewal of general business activity throughout the country."

The corporation not only provides for the allocation of funds to be handled by the Department of Agriculture for loans to farmers, who because of the existing emergency are unable to obtain loans for crop production, but also for loans to be made to insurance companies who may need such assistance to better enable them to meet their liabilities to policy holders.

New Ideas for Business Leadership

Depressions do not differ from booms in that they finally give way to the inevitability of ceaseless economic principles. As inaction follows over-action, so with the sureness of certainty, action always follows inaction. Such a turning point has at last been reached. The curtain is now rising on the final act of our war drama. *This* act is in the charge of industrialists and commercial leaders. Amongst them there are, of course, some who still adhere to foolish tradition; who cling to slavish acceptance of trade customs; who continue parrot-like applications of obsolete methods; who fail to seek new markets; who are satisfied with imitative or conventional advertising; who find stupid self-satisfaction in the rightness of the present product; who believe that inspirational letters are still a substitute for footwork.

But one of the principal by-products of every depression is a crop of new leaders—men who turn their eyes to constructive factors and know what they are seeing; who envision a distant goal and know how to get there. Never has there been a time when more new arts, new industries, new ideas were in the process of incubating. Throughout the world there is arising an extraordinary creative force which is willing to accept "reconstruction" as its keynote, to abandon the old and formulate the new.

One large butter manufacturer, finding it difficult to market his new line of salad dressings, had his butter cartons made one inch wider, so that now, with every pound of butter goes a liberal quantity of mayonnaise. The manufacturers of baking soda and table salt should go after the dentifrice market and abandon the time-honored belief that the human body can accept only so much soda or salt, that their business is different and can increase only in proportion to the population. The travel bureau people should take a leaf from the experience of the furriers and instead of sitting down and awaiting the return of ad-coupons from magazines, go out and sell trips to foreign countries on the basis of five dollars down and so-much weekly. Oleomargarine manufacturers should see the futility of bucking the class legislation of the dairy interests and cease trying to sell a substitute for butter. Let them color their product raspberry and sell a sandwich spread, or do something that is different—something that is creative, something that is reconstructive.

If we are to bring solid prosperity back to this country without continuing more years of needless distress, we must cast aside our fetishes and hampering ideas and reconstruct our methods and businesses along different, more creative lines. Let us take a tip from Mr. Hoover and make reconstruction the keynote for 1932. The

entire world is now a vast lake of repressed desires held back by a dam constructed principally of fear. Once perforated by the forces of restored confidence (which the Reconstruction Finance Corporation promises to effect), the structure will crumble and a flood of buying will pour forth, putting an end to the larger portion of our current troubles. But those who will reap the greatest harvest from the impending flood will be the reconstructive ones who help tear away the dam by creative effort.

Pulp Yield Increased in Judicious Selection of Slash Pine

A study of the variation in weight of the wood and the amount of heartwood in slash pine.

By BENSON H. PAUL, Silviculturist
Forest Products Laboratory, Madison, Wis.

SINCE wood is sold on a volume basis and the pulp on a weight basis, the advantage to the pulp manufacturer of purchasing wood of maximum density is therefore obvious. Recent studies by the Forest Products Laboratory, Madison, Wis., in regard to the variation of the weight of the wood in second-growth slash pine stands of pulpwood size reveal average differences of approximately 20 to 30 per cent in the weight of the wood from the base to the tops of the trees. Comparison of the average weight of the wood from different stands shows even greater average differences. Wood of the lightest average weight was obtained from a very young, rather incompletely stocked stand of about 220 trees per acre in which the trees ranged mostly from 8 to 16 years of age and from 5 to 10 inches in diameter at breast height. The average specific gravity (weight of the wood divided by the weight of an equal volume of water) of the wood of 37 trees from this stand, based on samples taken at intervals of 4 feet in the height of the trees, was 0.45.

Cross sections of second-growth slash pine.

Above—Dense wood of slow growth from a fully stocked stand.

Left—Wood of rapid growth and low weight from a young partly stocked stand.

In another stand in the same locality the average specific gravity of the wood, based on an analysis of 26 trees, was 0.52. The age of this stand is 27 years. It was originally stocked with about 300 trees per acre, but it had been thinned to some extent when 24 years old. The trees of this stand ranged from 6 to 13 inches in diameter at breast height, and the stand was estimated to contain about 30 cords of pulpwood per acre.

In a third slash pine stand containing 840 trees per acre, 30 to 35 years of age and from 5 to 8 inches in diameter at breast height, the average specific gravity of the wood, based upon samples taken at 4-foot intervals in 34 trees, was 0.55. This stand was fully stocked and contained approximately 58 cords of pulpwood per acre. Because of its greater age, the pulpwood sticks obtained from this stand were externally smoother and contained fewer knots than those obtained from the younger stands.

The significance of specific gravity in terms of pulp yield per cord of wood is perhaps best shown by the following tabulation in which the three lots of wood were pulped by the kraft process under identical conditions:

Average Specific Gravity	Weight per Cubic Foot	Weight of Wood per Cord[1]	Yield of Screened Pulp per Unit Weight	Return of Screened Pulp per Cord
0.45	28.0 lbs.	2240 lbs.	44.6 per cent	999 lbs.
.52	32.5 lbs.	2600 lbs.	47.4 per cent	1232 lbs.
.55	34.4 lbs.	2752 lbs.	47.7 per cent	1313 lbs.

[1]It is assumed that there will be 80 solid cubic feet in an average cord.

Table 1 shows the specific gravity values for the wood

Table 1.—Specific gravity of the wood of slash pine and percentage of heartwood in pulpwood sticks at various heights in the trees for stands of different ages and stocking.

Age	Number of trees per acre	Average d.b.h.[2]	SPECIFIC GRAVITY AND PER CENT OF HEARTWOOD AT DIFFERENT HEIGHTS																	
			Stump		4 feet		8 feet		12 feet		16 feet		20 feet		24 feet		28 feet		32 feet		36 feet	
			Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood	Specific gravity	Per cent heartwood
Years		Inches																				
8 to 16....	220	5 to 10	0.496	0	0.500	0	0.470	0	0.423	0	0.415	0	0.388	0	0.440	0	0.407	0	.....	.....	.....	.....
27.....	300	6 to 13	.574	...	.576	3.2*	.535	...	.509	5.0*	.503	...	.496	3.9*	.489	...	.475	2.7*	0.481	...	0.478	1.1
30 to 35....	840	5 to 8	.508	2.9	.615	4.6	.560	5.4	.563	5.8	.543	4.7	.531	4.3	.502	3.4	.495	2.7	.510	1.5	.447	0

*Average for 8 feet of stem length.

Slash pine stand 8 to 16 years of age that produced 999 pounds of pulp per cord of wood.

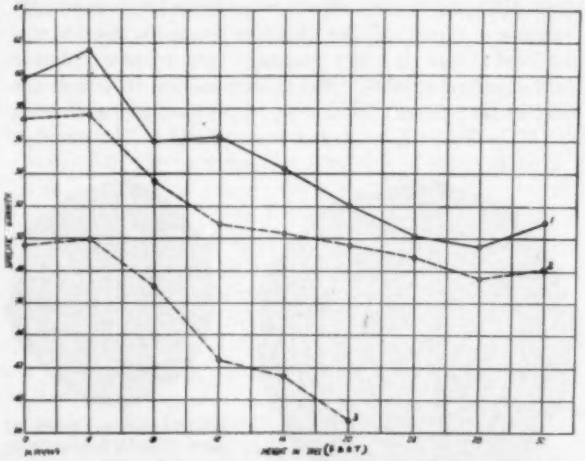
from the above stands at intervals of 4 feet in height in the trees, also the amount of heartwood found in the pulpwood sticks from different heights in the trees.

Heartwood

Since there is considerable interest at the present time among papermakers as to the influence of heartwood in pulping southern species, it seemed desirable to compute the volume of heartwood in the trees from each of the foregoing stands, although the amount of heartwood contained in second-growth stands of slash pine is relatively small. Accordingly, measurements were made of the diameter of the heartwood and of the average diameter of the trees at the place where each specific gravity sample was taken. Heartwood was not present in all trees or at all heights in the trees. The wood from the trees 8 to 16 years of age contained no heartwood; that from the 27-year stand contained 3.7 per cent heartwood; and that from the 30 to 35-year stand contained 4.3 per cent of heartwood. The percentage of heartwood is based on the total volume of all of the pulpwood sticks in each shipment and the total volume of the heartwood portion of the sticks.

Need for Additional Information

Although this paper shows that by a judicious selection of second-growth slash pine, the yield of pulp may be increased more than 300 pounds per cord and that the heartwood content of slash pine is small, it does not answer such questions as the desirability of excluding



Average variation in the specific gravity of slash pine from the base to the top of the merchantable length of trees of pulpwood size:

1—Slash pine trees 30 to 35 years of age.
2—Slash pine trees 27 years of age.
3—Slash pine trees 8 to 16 years of age.

Slash pine stand 35 years of age that produced 1,313 pounds of pulp per cord of wood.

all heartwood from slash pine before pulping, the length of rotation for growing a crop of pulpwood trees, the cost of cutting pulpwood from trees of different sizes (number of sticks per cord), the ease of pulping and bleaching versus the yield of pulp per cord. Many of these questions are now being studied for the different species of southern pine at the Forest Products Laboratory. Their solution will serve as a guide for more intelligent management of the extensive second-growth southern pine stands which are now in the early stages of growth and which are likely to play an important part in the future of the pulp and paper industry, as well as in solving the problem of the best land use for a large proportion of the 60,000,000 acres included in the coastal plain area of the southern states.

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Fireproofing Paper

Incorporation of Asbestos with the Pulp Gives Best Results, Glass Wool Also Used.

VARIOUS mineral substances have been used from the earliest times as fireproofing agents, the practice of treating textile and fibrous materials like paper or board to make them fire resistant, having been traced back to the time of the Caesars or earlier. The impregnation of paper and textiles with solutions of chemicals is of later invention and much used, though less in vogue nowadays than formerly. The preferred method is to incorporate mineral substances like asbestos or glass wool with the furnish. An incombustible all-asbestos paper, of light weight and with a soft surface having a feel like that of dressed kid, has been made successfully at the experimental paper mill of the Bureau of Standards, Washington.

It is noted by Vail in his book on *Soluble Silicates in Industry* that numerous compositions of matter involving soluble silicates have been patented as fireproofing agents. In this work, which is characterized by evidences of painstaking research and unusual charm of diction, it is noted that von Fuchs, who was the introducer of soluble silicates to industry, was also the first to use silicate paints in the coating of theatrical scenery to prevent fire. As regards patented compositions, perhaps of service for some specific condition, they are often unnecessarily complicated, and Vail cites those only in which the silicates are applied as films.

Of the chemicals adapted for the impregnation of paper, cloth fabrics and other textiles to be rendered incombustible, a necessary condition is that they must be soluble in water. The most useful of these chemical substances may be named, as follows:

Sodium tungstate	Zinc chloride
Sodium stannate	Alum
Ammonium bromide	Aluminum sulphate
Ammonium chloride	Magnesium sulphate
Ammonium-magnesium sulphate	Magnesium chloride
	Sodium silicate
Ammonium phosphate	Ammonium salts of organic
Ammonium sulphate	and inorganic acids

While sodium tungstate and sodium stannate possess outstanding fireproofing properties, they are somewhat expensive for common use and sodium silicate is better adapted for general use, being cheap and relatively harmless. Ammonium sulphate forms a good fireproofing agent but it has the disadvantage of discoloring and otherwise acting deleteriously on the paper or fabric to which it may be applied. Ammonium chloride is less injurious but it is not so permanent in its effects, being readily vaporized and removed from the paper treated with it. Ammonium bromide is a comparatively new fireproofing agent. It is the principal ingredient of a formula patented recently in Germany. Ammonium salts of organic and inorganic acids are also employed.

A few of the chemicals listed above, such as ammonium-magnesium phosphate, ammonium phosphate, sodium silicate and magnesium chloride are adapted for impregnating substances to be rendered incombustible and find application for special purposes, particularly in the fireproofing of theatrical scenery, cloth fabrics and building materials. The action of some of the chemicals touched upon here may be quite different with different materials and it would be well therefore to make a preliminary test in order to establish their usefulness for the given purpose.

With regard to paper, the efficiency of fireproofing chemicals may be estimated comparatively by the respective quantities considered necessary for textiles. Thus to render 100 parts of cotton noninflammable, the minimum quantities of chemicals that are deemed necessary are as follows: Tungstate of ammonia, 12 parts; sulphate of ammonia, 4½; phosphate of soda, 30; common salt, 35; phosphate of lime, 30; phosphate of magnesia, 30; chloride of magnesia, 4½; borate of alumina, 24; hydrated alumina, 3.8; chloride of ammonia, 4.2; phosphate of ammonia, 4½; silicate of soda, 50; borax, 8½; chloride of calcium, 4.6; sulphate of magnesium, 15; chloride of potash, 45; borate of zinc, 20; phosphate of alumina, 30; boric acid, 10; silicic acid, 30.

It is averred that paper which has been immersed in a bath of ammonium sulphate 8 parts, boric acid 3 parts, borax, 2 parts, water enough to make 100 parts, will not burn. This formula may be varied. Paper may also be fireproofed by impregnating it with a solution in water of ammonium phosphate, 40 parts; ammonium sulphate, 40 parts, and magnesium chloride, 10 parts.

For the fireproofing of hard size papers it is suggested to incorporate with the sizing, ammonium phosphate, 4 ounces; sodium tungstate, 4 drams; sodium borate (borax), 4 drams; boric acid, 1 dram, all dissolved in 1 quart of water. The solution is added to the size in proportion of from 1:4 to 1:3.

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Pulps Used in Different Papers

The accompanying table of percentages of pulp materials used in the manufacture of major paper grades, computed on basis of 1929 statistics, is taken from an article in *Pulpwood*, a publication of the Pulpwood Department of American Paper and Pulp Association.

Kind of Paper	Total	Mechanical	Sulphite	Sulphate	Soda	Other Pulps
Newsprint	100	80	20	..	..	..
Book	75	10	35	..	30	25
Writing	73	..	66	2	5	27
Wrapping	97	11	29	57	..	3
Boards	22	4	8	10	..	78
All Other	60	21	28	5	6	40

In conversion 7 per cent is added for pulp losses in paper manufacture.

World's Largest Harper Fourdrinier Machine

Installed in Plant of Moyer & Pratt, Inc.

By HARRY E. WESTON
Staff Representative

TUCKED in among the hills, rocks, and trees about three or four miles east of Lyons Falls, N. Y., in a community known as Lyonsdale, is located the paper mill and groundwood plant of Moyer & Pratt, Inc. It is situated on the Moose River, and has been operated on this site for approximately 30 years by Moyer & Pratt, the firm, however, not being incorporated until 1923.

The original mill was a one machine mill with buildings of wood construction. When the property was taken over by Moyer and Pratt, the buildings were repaired, the groundwood plant remodeled, and the paper machine rebuilt. Several years later, the buildings were rebuilt of concrete and a 112-inch Black-Clawson Harper fourdrinier was installed along with the original machine —a 72-inch fourdrinier.

Up to the time when the Harper was installed, the mill had been producing butcher's manila, 25-pound manila and fiber papers. Shortly after the installation of the Harper, the mill was placed into production on tissue and during the intervening years has continued to manufacture this kind of paper. Present products include No. 1 and No. 2 White and Manila paper of 10-pound to 13-pound basis weight in sheets and in jumbo rolls.

The 72-inch fourdrinier was sold to the Bagley & Sewall Co. of Watertown, N. Y., in 1910 and Moyer & Pratt in turn purchased from them a 132-inch Harper. The mill operated the 132-inch machine along with the 112-inch machine until 1929 when the 112-inch machine was removed. In its place they installed what is said to be the largest Harper fourdrinier machine in the world. It is a 178-inch Bagley & Sewall machine and was placed in operation during July, 1930.

Steam and Water Power

Before proceeding with a detailed description of this machine, it is believed that a few more facts about the plant as a whole will be of interest. The mill, for instance, at the present time uses no electric motors for driving any equipment. Seven S. Morgan Smith water-wheels with a total capacity of approximately 2,000 hp. operate most of the machinery. One wheel drives a 3-pocket Glens Falls grinder, while another wheel operates two Carthage 3-pocket units. A third wheel furnishes power for three 1,200 pound beaters—1 Dilts and 2 Dillon and a boiler feed pump. Separate wheels are also used for the operation of an 1,800-pound Dilts rebuilt beater, the pumps in the groundwood mill, the 178-inch Bagley & Sewall machine, and for the operation of a dynamo which produces electricity for lighting the mill as well as the homes of employees in the village.

The 132-inch Harper is driven through a 12-in. x 14-in. Brownell two-cylinder steam engine, the exhaust from which supplies steam for drying on both of the machines. A Terry steam turbine has also been installed in conjunction with the 178-inch machine, so that it may be used to drive the machine whenever operations deem it desirable.

The boiler plant includes a 450 hp. Union Iron Works boiler equipped with a Murphy stoker. The boiler is operated at 175 pounds pressure. Natural draft for operating the furnace is obtained from a new 150-ft. brick stack. A 150 hp. Union Iron Works boiler also serves the plant as an auxiliary unit for emergency operation.

Another interesting fact about the plant is that it is located three or four miles from a railroad. The shipping point for the mill is Lyons Falls. This location necessitates the hauling of all materials required for process operations from Lyons Falls to the mill, and in turn the hauling of the finished paper from the mill to Lyons Falls. An improved highway between the mill and shipping point makes it possible to use a fleet of several specially designed auto trucks advantageously and economically.

Description of Machine

The 178-inch Bagley & Sewall Harper fourdrinier machine is installed in a neatly arranged, well-ventilated, and well-illuminated machine room.

The fourdrinier part, designed to use a wire 45 feet long and 178 inches wide, is equipped with a 20-in. diameter and 180-in. face bronze breast roll, 6-in.

Drive side of paper machine. Note spiral bevel gear driving units, and totally enclosed dryer gears.

diameter brass table rolls, 10⅞-in. diameter brass stretch and carrying rolls, a 30-in. diameter and 178-in. face gun metal bottom couch roll, and a 26-in. diameter, 184-in. face, rubber covered, top couch roll.

The bronze breast roll is built on heavy ribbed heads with steel journals, 4⅞ inches in diameter and 9 inches long. The journals rest in adjustable pivoted bearings which are hung outside of the shaking fourdrinier frame. The breast roll, table rolls, stretch and carrying rolls are all fitted with anti-friction bearings. Bronze lined, ring-oiling bearings are used on the couch rolls. Anti-friction bearings are also used for a rubber covered wire guide roll.

A special frame attached to the permanent rails carries two brass suction boxes. These boxes, 4 inches deep by 5 inches wide inside, are equipped with adjustable heads, and 1¾-in. thick maple covers. The permanent rails also carry the deckle drums, while the shake rails carry the table rolls and deckle frames. The deckle arrangement permits the use of rubber deckle straps 2 inches square.

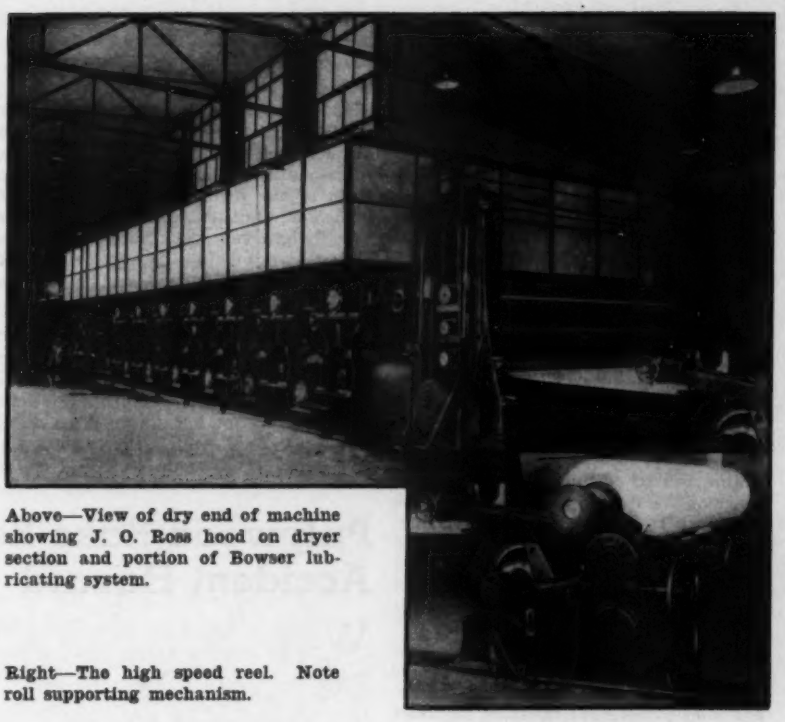
An adjustable lip slice is used on the machine. It is 30 inches deep and of brass, and is placed over the center of the breast roll.

A cast iron frame of rigid design equipped with felt stretchers, guides, and bearings for the felt rolls carries the felt over the fourdrinier part. The Harper felt rolls are 10⅞-in. outside diameter and are of drawn brass tubing placed over 10-in. standard steel pipe. A pair of rubber covered wringer or squeeze rolls remove excess moisture from the Harper felt on its return travel to the top couch roll.

Press Roll Section—The press part of the machine includes a single press section with the bottom press roll 28 inches in diameter and a 178-in. face, and a top roll 24 inches in diameter with a 180-in. face. The bottom roll is rubber covered, while the top roll is hollow cast iron.

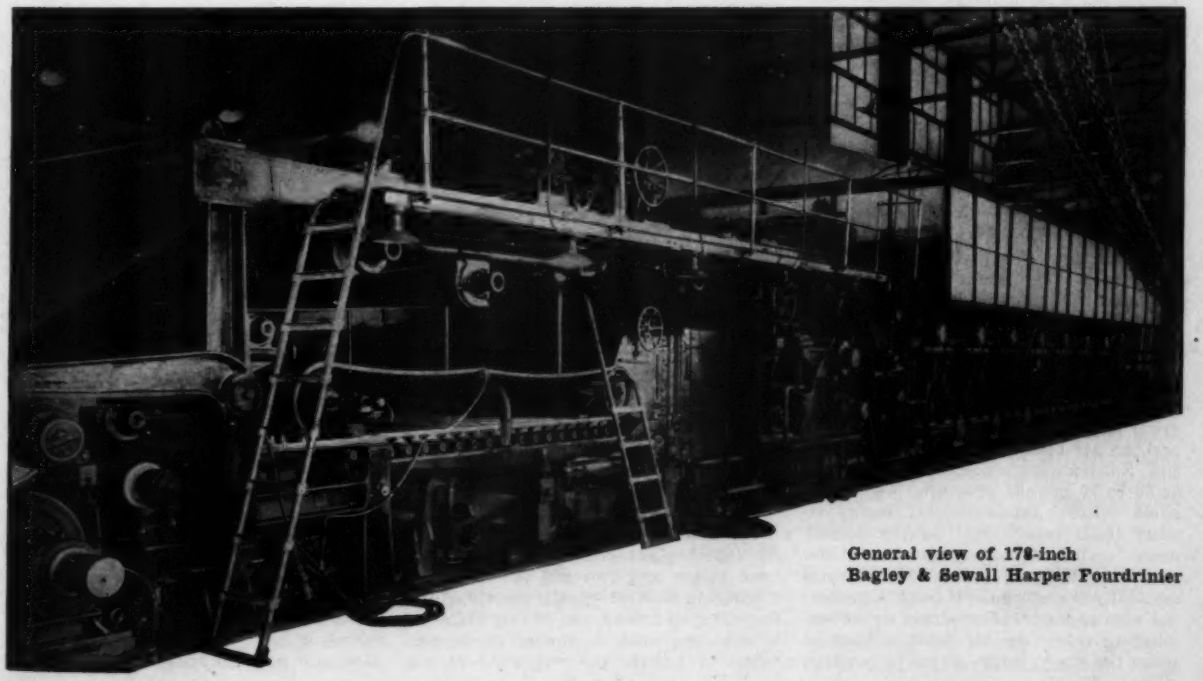
The press part is designed to permit easy raising of the top roll. At the same time, by putting a link of suitable length around the journals of the top and bottom press rolls on each side of the machine, it is a simple matter to raise the lower roll from its bearings to facilitate the changing of felts, or to remove the lower roll bearings. The top roll is equipped with the usual system of compound levers and weights.

All of the necessary felt rolls about the presses are standard steel pipe encased with seamless drawn brass tubing. The outside diameter of the rolls is 10⅞ inches. Three of these rolls are wormed. The stretch and hitch rolls on the Harper and press felts are likewise



Above—View of dry end of machine showing J. O. Ross hood on dryer section and portion of Bowser lubricating system.

Right—The high speed reel. Note roll supporting mechanism.



General view of 178-inch Bagley & Sewall Harper Fourdrinier

brass encased 10-in. standard steel pipe.

One horizontal felt stretcher, one long travel balanced guide, and one hand guide is used for the Harper felt, while an automatic swinging guide and a long travel balanced guide and stretcher is used for the pick-up felt. The pick-up felt automatically transfers the web of paper from the Harper felt to the receiving dryer. This dryer is 36 inches in diameter and has an 182-in. face. It is driven through a shaft and cone pulley arrangement from the press section drive.

Dryer Section—The dryer section proper is made up of 14 cast iron dryers, each 60 inches in diameter with a 176-in. face, and each fitted with a self-aligning antifriction steam joint with an adjustable position syphon pipe. All of the dryers were bored to relieve foundry strains and to permit uniform transfer of heat. The dryers, arranged in double deck with the last top dryer overhanging, are carried on Timken roller bearings which are lubricated through a Bowser circulating oil system. An iron foot board with steps and hand rail is located the full length of the dryer section on the drive side of the machine. The dryer gears cut from the solid have a 6-in. face and are of small diameter. The idler pinions are mounted on roller bearings. Doctors are installed on each of the bottom dryers and on the last top dryer. Felt carrying rolls about the dryers are supported in anti-friction bearings. The rolls are of 10-in. and 12-in. standard steel pipes which have been turned smooth, as was the case in each of the various steel rolls previously mentioned as being encased with brass tubing.

The Calender End—The machine calender includes a single stack of four rolls. Each roll has a 168-in. face. The bottom roll is 28 inches in diameter; the two intermediates are 14 inches, and the top roll is 18 inches. The housings for the stack were designed to permit all rolls, except the top roll, to come out endwise. The housings are also fitted with Farrell Foundry & Machine Co.'s hydraulic lifting arrangement and hand pump. Each roll in the stack is equipped with a Warren calender doctor and feed. Bearings for the calender rolls are ring-oiled and water-cooled.

The reel is of the single drum uniform speed type. The drum is of cast iron 42 inches in diameter with a 170-in. face. Two drums of 8-in. extra heavy pipe turned smooth serve for winding the paper. There is no hand manipulation of the sheet at the reel. When one drum has been filled with paper, and the filled drum always on the winder side of the reel, an air blast furnished by a 7-in. x 8-in. Sullivan air compressor, operating at 80 to 90 pounds pressure, breaks the sheet which automatically begins to wind itself into a roll on the second drum located on the calender side of the reel. As the roll builds up, it automatically transfers itself from the calender side of the winding drum to the unwinding side. An air hoist is used to place the empty paper drum in position and to transfer the loaded drum to the unwinding stand. The reel is also arranged for hand manipulation when desirable.

From the unwinding stand, the paper is passed through a Bagley & Sewall two drum slitter and winder where it is cut to the desired widths in the rewinding. Each of the drums is of cast iron, 18 inches in diameter, 168-in. face and is spirally grooved. The slitting shaft in operation is on the center of the roll of paper being wound and rests upon the roll.

Machine Drive—Four sets of No. 3 Bagley & Sewall enclosed spiral gear type mechanical drives with necessary auxiliary equipment constitute the driving arrangement for the machine. The line shaft from which these units are driven is located in the basement of the machine room and extends in a parallel direction to the length of the machine, permitting belts to be connected conveniently from the pulley on the line shaft to their respective pulleys on the mechanical drives. The line shaft in turn, as mentioned previously, is driven through an S. Morgan Smith waterwheel or through a Terry Steam turbine.

The machine has been designed to operate with a speed range from 200 to 800 feet per minute with the speed based on the speed of the bottom couch roll. Such a speed range allows for considerable flexibility in the production schedule of the mill.

The active management of the mill is in charge of Mr. John W. Moyer, treasurer and general manager of the company. Mr. Charles W. Pratt is president, while Olive E. Moyer is vice-president and secretary.

Pulpwood Rake Reduces Accident Hazard

Mechanical System of Handling Logs at Plant of Maine Seaboard Paper Co.

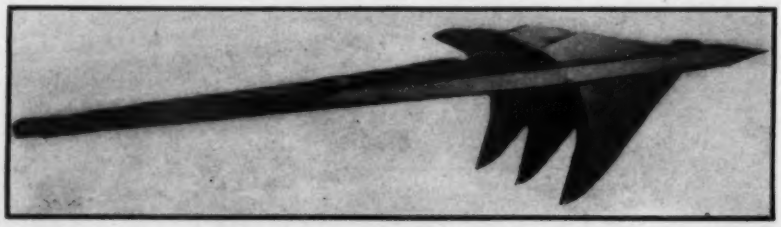
By J. B. PHILLIPS, President
Maine Electric Co., Portland, Me.

WHEN it comes to the handling of bulky raw materials, there is perhaps no more interesting piece of apparatus than the pulpwood rake such as that installed at the new plant of the Maine Seaboard Paper Company at Bucksport, Maine. With it one operator can do the work formerly requiring forty men. It eliminates a hazardous occupation to which all of these men were exposed. Its operating cost, both from the standpoint of maintenance and power consumption, is extremely low, the wood is not damaged by it and frozen piles may be broken up by it without the use of explosives. Naturally, with all these advantages, it goes without saying that the investment pays a handsome return.

This pulpwood rake is, in principle, a drag line scraper and being possessed of the flexibility of that type of handling machinery may, with perhaps some modifications, be used for a considerable variety of work. The stacker towers are about the same height as the storage pile, which is 55 to 60 feet, and the tail sheave towers 25 feet high.

The handling equipment in use at the Bucksport plant consists of a stacker, head tower and two tail towers. The stacker is a steel cantilever structure, traveling on tracks and 50 feet high. It is equipped with a double chain conveyor to handle the pulpwood at the rate of 75 cords per hour. The power rake, operated from the traveling head tower and either one of the two traveling tail towers, rakes from under the stacker to make up the storage pile which is 500 feet long, 400 feet wide and 60 feet high, amounting to something like 65,000 cords. The rake can handle on the average at the rate of 90 cords per hour when storing and some 120 cords per hour when reclaiming from storage for delivery to the mill. For the latter purpose, the logs are raked on to cable conveyors with buttons operating at the bottom of a V-shaped trough protected with steel plates.

With this general plan of operation in mind, let us give our attention to the more important mechanical details of the raking equipment. The rake itself weighs 9,000 pounds, is 32 feet long and 10 feet wide, and is made of steel members welded together. It is shown in the accompanying illustration. It carries 1½ cords per trip when hauling up to the top of the pile for storing and 2 cords per trip when pulling down to the conveyor for reclaiming. The average rope pull in doing this is 15,000 pounds.



Forward motion pulpwood rake. View showing teeth down in digging position. Each tooth is pivoted separately.

The traveling self-propelled head tower is 65 feet high. In the base is the engine house in which is located the haulage engine for operating the rake. This is a double drum band friction hoist with a cast iron base. The drums are of cast iron, and have finished grooves for the ropes. The shafts are steel forgings and the gears cast steel pressed and keyed to them.

Power is provided by a 200 hp., 600 r.p.m., 2300 volt, 60 cycle, slip ring motor. This is directly coupled to the pinion shaft. The ropes required for this service are 1 inch in diameter, made up of 6x19 plow steel strands. These pass through sheaves on the two steel tail towers which are 30 feet high and self-propelled. All sheaves are of steel and thirty times the rope diameter.

Rubber Covered Suction Rolls

By P. M. FOSTER
Beloit Iron Works

THE rubber covering of suction rolls is not a new procedure. A number of years ago it was tried out on a machine with the idea of increasing felt life. At that time the value of suction roll equipment was not so well established as it is today, and no great interest was shown, so that the worthy idea of rubber covering suction rolls gradually developed into nothing more than history.

Since it is quite often desirable to use a hard surfaced top roll such as granite, gun metal, chilled iron or hard rolls of other composition in order to improve the finish of the sheet, to make for safer running and to permit creping on the top roll of a suction press, the need of a suction roll with a comparatively soft cover has become continually greater and the process, tried and proven years before, has been brought back to fill this need.

It is an oft-proven fact that a suction press will remove more water with a lower nip pressure, or in other words, with much less weighting of the top roll than will a plain press, so that for even a greater water removal it is not necessary to weight a suction press as much as it is in the case of the plain press. For this reason, and also because the suction roll keeps the felt clean and in good condition, the felt life is greater on suction than on plain presses.

In the case of newsprint, kraft wrapping paper and bag, machines where high speed is the rule, greater pressures at the presses are required to provide greater capacity to dry increased production and as a result felt life is diminished. Sometimes the sheet being made must have a very smooth surface for printing, or sometimes the sheet is to be creped on the top roll which might be a chilled iron roll. In cases like these, felt life can be greatly improved by having a rubber covered suction roll in the bottom position. When using two hard surfaced rolls together, it is difficult, if not impossible, to obtain perfect crowns for various conditions of weighting and the nip pressure will not be uniform throughout their length resulting in wet streaks and non-uniform drying and finish. With the rubber covered suction press and a hard top roll, better equalization of pressure is obtained.

On soft papers such as book or others having a high soda pulp content, a suction press roll having very small holes is required to preclude any possibility of their marking the sheet. This also applies to some papers made of very hard stock and also to many papers when a suction press is being used as a second press. For papers of this type and for second suction press rolls used on papers where an old hard felt might permit the roll drilling to shadow-mark the sheet, the rubber covered suction roll is distinctly superior to the plain drilled metal roll. On a book machine producing a sheet having great bulk and using a 100 per cent soda pulp furnish, the bulk was greatly increased by the use of a rubber covered suction press roll which sent the sheet drier to the dryers and as free of marks as if made over a plain press.

In the design of most glassine and greaseproof machines, it has been customary to use a metal suction roll in the first press co-working with a light weight top roll because these highly hydrated stocks mark very easily and the nip pressures used must necessarily be kept low. On this class of paper the efficiency of the suction press can be greatly increased by reason of greater nip pressures and water removal if the suction rolls are rubber covered.

Before rubber covering, the gun metal shell is drilled in the conventional manner with comparatively large perforations. The rubber cover is then put on and the rubber is drilled to match the holes in the metal shell. The drilling in the rubber being much smaller than that in the metal. Thus, by having a much smaller hole than is practical to drill in the metal and because the holes in the rubber tend to close when passing through the nip of the press, all possibility of marking the sheet is eliminated.

Heretofore on newsprint machines, felt life has been sacrificed by the use of a granite or other hard roll co-working with a perforated metal suction roll in order to take advantage of the economies and increased production directly resulting from the use of a suction press. This practice is no longer necessary and the combined advantages of the hard roll on top with the rubber covered suction roll in the bottom open another avenue to safer running and lower operating costs.

It is no longer necessary for any paper machine, regardless of the kind of paper made, to be without suction press equipment.

◆ Forestry College to Have New Laboratory

A contract has been let for the construction of a $50,000 pulp and paper laboratory building at the New York State College of Forestry, Syracuse, N. Y. This building will house the semi-commercial pulp and paper laboratories of the College now in the basement of the present College of Forestry building, according to Professor C. E. Libby in charge of the pulp and paper courses at the College of Forestry.

The new building will be 160 ft. long by 60 ft. wide, a one-story and basement structure containing approximately 18,000 sq. ft. of floor space. The building is designed to contain a general chemical analytical laboratory, a paper dye-stuff laboratory and a paper testing laboratory equipped with constant humidity and temperature control. There will also be a pulp testing laboratory, research laboratories and a semi-commercial digester room and a paper machine room.

The semi-commercial digester room will contain digesters for manufacturing pulp by the various chemical processes and the digesters will be of a size to produce from 200 to 300 pounds of chemical pulp from a single cook. It is proposed to install a sulphite digester and an alkaline pulping digester, which will be used both for the soda and sulphate processes of making pulp. This digester room will also be fitted with equipment for the manufacture of acid, caustic cooking liquors and bleach liquors. It is planned to install several pieces of semi-commercial wood-preparing equipment like barkers, chippers and chip screens. A mechanical pulp grinder will also be installed.

The paper machine room will contain pulp beaters, jordan engines and a 30-inch combination fourdrinier and cylinder paper machine. The cylinder part of the machine has been designed with three cylinders to enable the college to experiment with the manufacture of paper boards which are of particular interest to New York State because of the large number of paper board mills in the state.

The excavation of this building is now under way and it is hoped to have it completed in time for occupancy at the beginning of the 1932-33 college year.

◆ DR. JESSIE E. MINOR, analytical and consulting chemist for the pulp and paper industry, is now conducting her laboratory at 95 State Street, Springfield, Mass., where she is prepared to make complete physical, microscopical and chemical testing of papers and pulps of all kinds, testing of mill materials, consultation and instruction on control testing, and research on definite problems relating to paper.

◆ THE FOX RIVER Safety Conference will meet Friday, May 21, 1932, at Appleton, Wis. W. K. Balanger, district manager of the Wisconsin River Telephone Co., is general chairman.

The Paper Industry Safety Contest

July 1 to December 31 (Cumulative)

No-Accident Record in 15 Mills

PERFECT SCORES

Division I—Paper and Pulp Mills

	ENTRANT	MILL	LOCATION
GROUP A			
GROUP B	The Champion Coated Paper Co.	No. 1	Hamilton, Ohio
GROUP C	Dells Paper & Pulp Co.	Eau Claire	Wisconsin
	Pioneer Paper Co.	Los Angeles	California
	Cornell Wood Products Co.	Cornell	Wisconsin
	Cons. Water Power & Paper Co.	Appleton	Wisconsin
	U. S. Envelope Co.	Morgan Paper Div.	Lititz, Pa.
GROUP D	International Paper Co.	Livermore Falls	Maine
	Continental Paper & Bag Corp.	Ashland	New Hampshire
	U. S. Gypsum Co.	No. Kansas City	Missouri
	Hollingsworth & Whitney Co.	Madison	Maine
	International Paper Co.	Riley	Maine

Division II—Remanufacturing

Oxford Paper Co.	No. 2	Rumford, Maine
Cons. Water Power & Paper Co.	Stevens Point	Wisconsin
Kimberly-Clark Corp.	Atlas	Appleton, Wis.
Bemis Bros. Bag Co.	E. Pepperell	Massachusetts

IMPERFECT SCORES—Division I

	Key	Rank	Points Credit	Points Debit
GROUP A	PA-10	1	952.356	
	PA- 2	2	711.488	
	PA- 3	3	652.752	
	PA-11	4	614.352	
	PA- 6	5	311.280	
	PA- 5	6	200.112	
	PA- 7	7	271.408	
	PA-12	8	35.888	
	PA- 1	9		293.056
GROUP B	PB-18	2	937.088	
	PB-16	3	891.888	
	PB- 4	4	849.792	
	PB- 9	5	832.416	
	PB-23	6	799.424	
	PB-15	7	758.224	
	PB-24	8	716.672	
	PB-27	9	706.576	
	PB- 1	10	694.400	
	PB-19	11	674.184	
	PB-20	12	657.904	
	PB-30	13	651.136	
	PB-14	14	635.840	
	PA- 4	15	608.880	
	PB-13	16	576.120	
	PB- 8	17	547.904	
	PB-25	18	379.808	
	PB-17	19	334.576	
	PA- 8	20	179.888	
	PB-21	21	140.880	
	PB-12	22		148.768
	PB-10	23		676.768
	PB- 6	24		735.440
	PC- 8	25		787.584
	PB- 7	26		1,346.784
	Division II			
	RA- 1	5	921.568	
	RC- 8	6	581.360	
	RC- 9	7	513.488	
	RC- 2	8	490.816	
	RD- 1	9	256.352	
	RB- 1	10		11.200
	RC-11	11		481.584

	Key	Rank	Points Credit	Points Debit
GROUP C	PC-24	6	874.496	
	PC-25	7	842.992	
	PC-51	8	839.776	
	PC-10	9	838.096	
	PC-18	10	778.752	
	PC-50	11	698.816	
	PC- 9	12	680.128	
	PC-43	13	640.192	
	PC-33	14	581.264	
	PC-35	15	566.000	
	PC-36	16	559.408	
	PC-12	17	494.048	
	PC-11	18	410.080	
	PC-44	19	350.320	
	PC- 3	20	333.952	
	PC- 1	21	291.232	
	PC-37	22	276.096	
	PC-49	23	111.440	
	PC-39	24	109.440	
	PC-19	25	89.488	
	PC-28	26		33.232
	PC-42	27		151.808
	PC- 2	28		169.776
	PC-31	29		173.856
	PC-30	30		238.560
	PC- 7	31		444.528
	PC-27	32		546.064
	PC-53	33		647.584
	PC-52	34		718.048
	PC-38	35		746.816
	PC-40	*36		770.960
	PC-13	37		919.072
	PC-17	38		1,067.680
	PC-47	39		2,302.640
GROUP D	PC-45	6	413.536	
	PC-46	7	182.032	
	PD-10	8		550.400
	PD- 4	9		750.032

WITHDRAWN: PA-9; PB-11, 22, 26, 28, 29; PC-14, 15, 22, 26, 29, 41, 54, 55; PD-3, 5, 11; RC-4, 7, 2.

No Dec. Report: PB-2, 3; PC-5, 6, 20, 21, 50, 57; PD-2, 12; RC-4, 7; RD-2.

No Nov. or Dec. Report: PC-4.

(*) No September Report.

◆ International Reduces Accidents

The International Paper Company has just prepared the accident history of its 17 paper and pulp mills and 3 bag factories for 1931, with comparisons for the year 1930. This summary shows a total reduction in days lost on account of accidents during the year of 44 per cent, while in the case of previous accidents losing time during the year there was an increase of 46 per cent, notwithstanding which there was a reduction of 37 per cent in total days lost.

Consderation of previous reports led the company executives to believe that plant management was not sufficiently impressed with the importance of the economic and social loss caused by industrial accidents. As a result, Vice President Charlton brought up the subject at a meeting of all plant managers under his jurisdiction. The results of a discussion of the subject are reflected by this annual report.

It is thought the champion record in safety is held by the International mill at Riley, Maine, which continues at this writing its unbroken record of five years without a lost time accident.

◆ Activities in Safety Organizations

Safety work in the State of Wisconsin has been leading all other activities. Plans were completed at a meeting at Appleton for the annual spring meeting of the Fox River Valley and Lake Shore Safety council at Appleton, May 20, drawing about 1,500 safety leaders from paper mills and other industries. W. F. Ashe, of the Thilmany Pulp & Paper Co., Kaukauna, is general chairman.

Traffic safety will have the major consideration, and W. Dean Kiefer, of the National Safety Council, Chicago, will assist in securing speakers. The sectional conference on paper and pulp mills will be conducted by H. D. Banta, of the Hoberg Paper & Fibre Co., Green Bay, Wis.; the metal section by C. E. Saecker, Appleton Machine Co., and the power group by William Shubert, of the Wisconsin-Michigan Power Co. Others assisting in the arrangements are: J. J. Pizak, Consolidated Water Power & Paper Co.; G. W. Stearns, Interlake Pulp & Paper Co.; W. C. Wing, Jr., and A. F. Kletzien, Fox River Paper Co.; R. W. Mahoney, Appleton Coated Paper Co., and M. G. Hoyman and F. F. Martin, Kimberly-Clark Corporation.

At the opening session of the safety school conducted by the Nekoosa-Edwards Paper Co., Nekoosa, the speaker was Dr. Charles Herbert Rust, Longmeadow, Mass.

Neenah-Menasha had 300 in attendance at the opening session of its safety school. The speaker was George St. Thompson, Detroit, Mich., speaking on "Safety in American Industry." Fred VanLiew, of the Kimberly-Clark Corporation, presided. On Feb. 1, F. M. Kreml, of the Evanston, Ill., police department, spoke on "Making Highways Safe." Others scheduled are: Feb. 8, Charles Milton Newcomb, Delaware, Ohio, "Laugh and Live;" Feb. 15, Walter E. Darling, Cincinnati, Ohio, "Prevention Is Worth Its Cost;" Feb. 22, Harry Rogers, Western Actuarial Bureau, Chicago, "Fire;" Feb. 29, closing dinner, James E. Green, New York City, "Diamonds and Dust."

◆ Papermaking Featured at State Forestry Meeting

Discussion of the development and future possibilities of papermaking in the South was a feature of the State Forestry meeting held at Camden, Ark., January 28. Charles Gillett, state extension forester of the University of Arkansas, was in charge.

One of the principal speakers was I. Y. East, chemist of the Southern Kraft Corporation, Camden. Mr. East stated that possibilities of the paper industry in the South are unlimited, and he predicted that newsprint will be extensively manufactured in the South.

On the day of the meeting, the delegates made a tour of the Camden paper mill. At this time, G. C. Shoptaw, in charge of 140,000 acres in the Arkadelphia district timberlands, owned by the Southern Kraft Corp., spoke on fire prevention work.

◆ Stream Pollution Suit Denied

After a long litigation, the stream pollution case brought by the State against the Southern Kraft Corp., Camden, Ark., was denied January 12 by Chancellor George M. LeCroy.

In July, 1931, a cloudburst flushed Two Bayou which empties into Ouachita river, and the petition alleged that the accumulation of paper mill waste which is discharged into the bayou killed a large number of fish. The denial was based on the fact that in addition to waste from the paper mill, the city sewage and waste from an adjacent refinery were discharged into the bayou. This is the second stream pollution suit against the paper mill which has been denied.

Importance of Commercial Research Stressed by Canadians

Appeal made by Technical Section for continued participation in pulp and paper research following stirring addresses delivered at successful annual meeting.

ON JANUARY 27 and 28, the Technical Section of The Canadian Pulp and Paper Association held its nineteenth annual meeting. It may be said that the keynote of the whole meeting was RESEARCH, and it was very much in evidence at all of the sessions, as well as at the annual luncheon and even at the annual meeting of the parent association.

In the absence of D. L. McLeod, who was unavoidably absent, J. O. Mason opened the Wednesday morning session by calling upon President Crabtree, of the Canadian Pulp and Paper Association, to say a few words to the section. After welcoming the members to their nineteenth annual meeting, Mr. Crabtree spoke of the hardships which the section had gone through during the last year, dwelling particularly on the two severe losses it had sustained in the death of E. Parke Cameron, director of the pulp and paper division of the Forest Products Laboratory, and of O. F. Bryant, secretary and technical adviser of the section. The effects of these losses were difficult indeed to estimate but the work so auspiciously started could not be permitted to stop. He felt confident that the section would prove itself equal to the task and expressed his appreciation of the splendid work and devotion of Dr. J. H. Ross, who had taken over Mr. Cameron's work pending the appointment of his successor.

In times such as the present, it was essential to turn one's thoughts to finding new production to help solve unemployment and enable the mills to operate profitably; the section should devote its time and attention to this problem, which could be solved only through team work on the part of the salesman, mill superintendent and technical man. Considerable quantities of paper are imported into Canada, a large portion of the imports consisting of grades which are not produced in Canada at the present time; there was no reason why many of these should not be produced in Canada, but before this could be done the requirements which these papers must meet had to be carefully investigated, and this was essentially the work of the technical man.

Award Offered for Best Paper on Commercial Research

It was important to stress particularly commercial research rather than pure research at the present time, said Mr. Crabtree. In order to encourage such work, he wished to offer for annual competition an award which would be dedicated to the memory of the late C. Howard Smith and which would be attributed yearly to the best paper on commercial research presented at the annual meeting.

The Chairman's report, reviewing the section's activities during the year, showed that steady progress has been made, which was especially gratifying in view of the trying situation of the industry. There was a net increase of 16 in the membership, which now stood at 335. Difficulties had been encountered in carrying on the committee work, which is an important phase of the activities of the section, both because it was difficult to persuade members to act on committees and because the ones who had consented to serve were in some cases not able to devote the proper amount of time to the work. But in spite of these drawbacks, it has as yet not been found possible to suggest any better form of organization.

Important Data Presented in Sulphite Committee Report

F. L. Mitchell reported that, as the Sulphite Committee was unable to hold frequent meetings, each member of the committee agreed to undertake collection of data and information on some specific subject that would be of general interest and value to the section. G. P. Genberg circularized operating companies with respect to their experiences with chromium-nickel steels in their sulphite mills and received many replies from which he has prepared a comprehensive summary, which are available on request from the Secretary. V. P. Edwardes and L. C. Anderson collected data on the heat saving devices and processes in use in sulphite mills, and attention was drawn to the successful installation of the chemipulp process, of which there are now several in the industry, giving satisfaction both in material heat savings and in pulp quality. Interest is also being centered on processes involving the combination of heat exchangers and mechanical circulation. Finally, F. L. Mitchell himself devoted considerable time to the study of pitch and minimization of troubles resulting therefrom in newsprint mills. Some very complete theoretical and practical work in this connection was carried out by the research department of the Abitibi Power and Paper Co. and was reported fully at one of the later sessions. As regards heat exchangers, Mr. Mitchell said that he was not aware of any commercial installations in Canada, though several were in operation in Europe. Mr. Macdonald said that Fiber Making Processes, Inc., were installing one at the Rhinelander, Wis., mill and C. B. Thorne added that the equipment was in operation at the Kipawa bleached sulphite mill of Canadian International Paper.

Discussion of Finish Started by Report of Newsprint Committee

The report of the Committee on Newsprint, presented by G. D. Bearce, gave rise to considerable valuable discussion. The Committee decided to devote its attention to the calendering process and the members sought the opinion of various men connected with the industry in regard to this operation as regards stock and machine operation and equipment. Attention was directed to the work being carried out on the effect of the surface of newsprint in connection with the process of printing by the American Newspaper Publishers Association, more particularly as regards the difference between "glossiness," as measured by the glarimeter, and "smoothness" of surface.

Professor H. O. Keay inquired whether any figures were available regarding the amount of moisture put back into the sheet by sweat rolls; this is important in calculating the heat balance and efficiency of dryer sections. Mr. Bearce replied that he did not know of any figures having been published on the subject. Though it would seem obviously more rational to dry down to the right moisture content instead of over-drying and then having to add moisture, this does not seem to be practically feasible in most cases. Dr. Kress had apparently succeeded in doing this in one of the Wisconsin mills, and it worked very nicely as long as Dr. Kress was there to watch over operations but when he left the mill they reverted to the use of a sweat roll. J. N. Stephenson suggested that there might be a difference in the state of the water left in the sheet at the end of the drying operation and of the water added to the sheet at the sweat roll, which would account for the necessity of using sweat rolls. According to H. O. Mason, the use of sweat rolls depends on the finish required, and when a very high finish was not desired it was not unusual to dispense with sweat dryers altogether.

Dr. Boyd Campbell, whose work on hydration of pulp has attracted considerable attention during the last couple of years, offered an explanation of the mechanism of calender cuts. When water is put back into a sheet of paper, the latter absorbs it very rapidly and at the same time expands; if the calender stack is too close to the sweat rolls, this expansion is not completed by the time the sheet reaches the calender and takes place as the sheet travels around the rolls, with consequent cutting. In reply to a question by T. L. Crossley, Mr. Bearce said that the additional moisture introduced at the sweat roll increased the pop test of the sheet, but it also increased the liability of snapping of the sheet when passing through the printing press.

The effects of offsetting calender rolls and of slip between the rolls also came in for some discussion. According to Mr. Bearce, slip may change the characteristics of the immediate surface of the sheet and should be investigated. Work done in the United States would tend to show that with higher solid fraction (and consequently with heavier calendering) the pop and tensile strengths of the paper are increased; W. B. Campbell, however, stated that increase in strength is produced only by beating or by wet pressing (which apparently both have very much the same influence on the strength characteristics of the sheet) and not by dry calendering. James d'A. Clark drew attention to the importance of the direction of offsetting or staggering of calender rolls, that is, towards or away from the direction of travel of the paper; the trouble reported by certain mills which have tried this may be due to the tremendous side thrust developed when the rolls are offset in the wrong direction.

H. J. Buncke related an interesting experience relative to the importance of the crowning of the bottom calender roll. It had been observed, in one of the mills with which he is connected, that the optimum crown varied with the moisture content of the sheet; in that particular mill trouble was experienced that could be corrected by altering the crown of this roll, but when the moisture content of the sheet was changed the trouble reappeared. There were several kinds of paper made in this mill, and the extreme range of moisture contents for all sorts was probably from 3.5 to 7 per cent.

British Method of Pulp Testing Recommended by Standards Committee

The report of the Committee on Chemical and Physical Standards, presented by Prof. H. O. Keay, made a distinct contribution to the problem of the adoption of an internationally recognized standard method for the determination of pulp strength, by recommending adoption of the British standard method as a tentative official method by the Canadian Pulp and Paper Association; while accepting the principles of the method, however, the Committee felt that certain details of the specifications embodied in it are not essential to these principles. Dr. J. S. Bates, in supporting the recommendation, said that his opinion of the British method could best be judged by the fact that his organization (Price Bros.) at present had two British sheet machines and was intending to get three more. At last year's meeting he had reported the opinion that the British method was the best; this year he could only say that additional experience during one year had converted his opinion into a firm conviction. He urged Secretary Macdonald of T. A. P. P. I., who was present, to impress on his association the desirability of their adopting the method so as to make it truly international. Dr. Bates concluded by suggesting that, in the interests of stability, means should be taken towards adoption of the method for a definite number of years, say three; during that time no changes would be made, but any changes suggested could be studied with a view to the advisability of their adoption at the end of the period.

Dr. Mees of Eastman Kodak Co., Speaker at Annual Luncheon

At the annual luncheon of the Section Dr. C. E. K. Mees, director of research of the Eastman Kodak Co., Rochester, gave a most interesting and instructive talk on Research. Dr. Mees likened the role of research in modern industry to that of yeasts and similar organisms in fermentation; and just as the yeasts and other organisms live on and consume a small proportion of the medium in which they produce a large proportion of valuable product, so research can rightfully claim a certain proportion of the large profits which it produces for industry. The chief and most important function of research is to provide for an item which is unfortunately all too frequently neglected by accountants and cost men in drawing up the balance sheet, namely, obsolescence. Too great impatience should not be shown, however, in expecting returns from research laboratories. According to Dr. Mees, who can certainly speak with the authority of experience, when an industrial research laboratory is organized, it takes some four or five years to get it well under way and functioning properly, and it requires about ten years before it can begin to show returns for the expenditures made upon it.

The Fruits of Research and Some Contrasting Examples

The speaker went on to relate his own experience in the field of research, both in England and in the United States. When Mr. Eastman brought him to Rochester to take charge of the research activities of the Eastman Kodak Co., Dr. Mees explained quite frankly to his new employer that he could not see how he could hope to justify the outlays which would be made in less than ten years. But Mr. Eastman had unbounded faith in research, and year after year he continued to furnish the funds required for his laboratory. About a dozen years later his faith found striking justification when the advent of amateur cinematography and color photography found the company prepared, thanks to the work that had been going on quietly under the direction of Dr. Mees, to supply the demand created by these developments. This was contrasted by the situation which was forced upon some industries which had not considered it necessary to undertake research work; two striking examples were given, that of the phonograph industry, which was caught flat-footed by the advent of the radio, and that of the paint industry, which passed through very trying times through the development of cellulose lacquers and paints shortly after the end of the war.

Dr. Mees concluded by saying that he did not know of any organization having become bankrupt because of excessive expenditures on research; but he could mention more than one that had gone under through lack of it. The policy to adopt, particularly in times such as the present, is to spend as much as can be spent profitably, not to spend as little as you can and survive.

In thanking the speaker, Sir Arthur Currie, Principal of McGill University, regretted that the high executives and leaders of the industry were not present to hear the message of Dr. Mees. It had been intimated that, on account of the difficulties of the industry, the Canadian Pulp and Paper Industry might discontinue its grant of $27,500 a year to the Pulp and Paper Research Institute, whose work is carried out jointly by the Federal Government, the Association and the University; and Sir Arthur hoped that the opinion of a man such as Dr. Mees could make them reconsider the question before a final decision was taken which might jeopardize the work which was progressing so favorably and disrupt an organization which had been built up at the expense of much time, effort and money.

Qualities of Pulp Reviewed in Paper by Dr. W. B. Campbell

At the opening of the afternoon session Dr. W. Boyd Campbell presented a paper in which he outlined some recent researches on pulp qualities. He drew attention to the fact that the tests applied to pulp are, in general, not tests for pulp quality directly, but are tests of products made from pulp by standard methods, this being true of pulps for paper, for viscose or for nitrating; and he concluded with some general suggestions as to the direction in which advantage might be taken of the discoveries which he had reviewed to develop commercial products and processes.

"Hydration" of Pulp Discussed

Dr. Emil Heuser, of Hawkesbury, went at some length into the question of so-called "hydration" of pulp and urged the necessity of a proper definition of the term "hydration" as the papermaker might have a different conception of its meaning from that of the chemist. Dr. Campbell replied that he could not say exactly what happened to the pulp in the beater, but he had a pretty good idea of what occurred.

Fibrillation of the fiber during beating resulted in a considerable increase in the surface of the fiber, and as a result more water was held by the fibers in a sort of mechanical way. One thing of which he was perfectly convinced as result of both his own work and work carried out in the United States was that there was no true hydration in the chemical sense of the word.

Dr. Hibbert, professor of industrial and engineering chemistry at McGill University, explained that considerable work had been carried out under his direction on relatively simple synthetic compounds in the hope that the behavior of compounds chemically similar to cellulose might shed light on the behavior of cellulose itself. The cellulose molecule contains ring-forming oxygen atoms, and the work carried out on simple compounds had shown that each such atom is a center of attraction for water; the beating action exposes a larger number of such centers to contact with water, with the result that more water is taken up by the pulp. Consequently, Dr. Hibbert considers that hydration is not a purely chemical, but a physico-chemical action.

Selective Screening in Classification of Pulps Described by Dr. Johnston

Dr. H. Wyatt Johnston, of the Forest Products Laboratories, described the experiments carried out on the classification of pulp by selective screening. A large number of tests were made on groundwood using an Abitibi apparatus for selective screening. It was found that it was very difficult to obtain agreement between duplicate tests on the same pulp and that pulps whose physical properties were very similar sometimes gave apparent duplication of tests which agreed well for each pulp but did not agree well as between different pulps. This vitiated the usefulness of the test and in many cases rendered its interpretation difficult.

After trying out numerous modifications of the test, a new type of apparatus was built in which a series of cans are fitted with draft tubes and single propeller agitators, the arrangement being such as to give positive circulation with sensibly uniform velocity parallel to the screen over the effective opening. The effluent from one screen flows to the next and mixes with the circulating liquid in that screen. No diaphragms or vibrating parts are required. With this arrangement it was found that there there is close classification of fibers, both according to length and according to diameter. The speed of screening is considerably increased, but it is necessary to define closely the factors of time and rate of stirring to obtain consistent results. It seems likely that the principle involved in this method might be worthy of development for commercial application as it seems to have promise of advantages in the way of speed and of excellence of action in removal of shives and dirt.

The apparatus has as yet been used only on groundwood and Dr. Johnston stated he would gladly receive samples of groundwood from the mills so as to have as many different types of groundwood as possible to study the applicability and usefulness of the test. He also suggested that it might prove very useful in ascertaining the nature of the groundwood used in the manufacture of a given sample of newsprint.

James d'A. Clark said that a very similar apparatus had been devised at Chillicothe, where it was being used satisfactorily for the control of groundwood used in the manufacture of 9-point board.

Effect of Alkalinity in Bleaching Described by Dr. F. H. Yorston

Dr. F. H. Yorston dealt with the effect of alkalinity in bleaching. By keeping the bleach liquor alkaline, it was found that stronger pulp can be obtained with a small saving in bleach. It is not necessary, however, to make the liquor strongly alkaline; it is preferable to maintain the alkalinity, by buffering or otherwise, at a pH of about 9, which is equivalent in alkalinity to a normality of about 0.00001. Dr. Yorston then proceeded to give in detail the rates of bleaching and pulp properties for a series of bleaches made at about this alkalinity, using magnesia as a buffer.

Concentrated Alkali in Pulping Described by W. E. Adlington

W. E. Adlington presented a paper in which he described the results obtained by the use of concentrated alkali (40 per cent caustic soda solution) in pulping. The results of this investigation, in brief are that: (1) very concentrated solutions of caustic soda pulped all the woods tried (which included both conifers and broad-leaved woods) in an exceedingly short time (from 1 to 2 hours) at comparatively low temperature (from 140 deg. to 160 deg. C.); (2) these pulps have qualities which are perhaps quite valuable commercially; (3) the strength of pulp obtained under optimum conditions compared favorably with, though somewhat lower than, that of ordinary news sulphite made from spruce; (4) yields of about 49 per cent (screened) of very light-colored and very-easy-bleaching pulp were obtained; (5) the pulp does not respond readily to beating, even before bleaching; (6) the use of concentrated liquor could lead to the evolution of a continuous pulping process requiring equipment operated at remarkably low pressures.

Soda Process Variables Discussed by C. R. Mitchell

Soda process variables and their effect on yield and quality were next discussed by C. R. Mitchell, who studied the temperature range of 150 deg. to 180 deg. C. and concentrations of alkali from 0 to 3 per cent for a four-hour digestion period. Quality was gauged by the viscosity of a solution of the pulp in cuprammonium reagent. Removal of lignin, when contrasted with removal of carbohydrates, varies considerably with the conditions used in pulping. Pulps having a given lignin content can be made in the four-hour period either by using low concentration at high temperature or by using higher concentration at lower temperature; but to obtain such pulp at maximum yield it is necessary to use an intermediate concentration since both high concentration and high temperature are destructive to the cellulose. The effect of an increase in temperature is always to decrease the viscosity or "quality" of the pulp; therefore a proper balance must be reached in arranging conditions of temperature and concentration so that defibration is complete and delignification is carried to the point where the final bleaching may be carried out on a pulp having a maximum of viscosity.

Review of Physical Chemistry Work Given in Three Papers

The Thursday morning session was opened by three papers dealing with the work being carried out in the Department of Physical Chemistry of McGill University under the direction of Dr. Otto Maass. Dr. Maass first gave a paper in which he outlined the progress accomplished to date on investigations of the physico-chemical relations existing in sulphur dioxide solutions both in presence and absence of lime, investigations on penetration of wood by vapors and liquids under varying pressure and temperature conditions, on sorption of chemicals out of their solutions by wood, and on the use of light absorption as a means of determining consistency and particle size in suspensions of finely divided pulp. R. Richardson and J. W. Sutherland, two of Dr. Maass's workers, dealt in turn with Sorption and Natural Penetration of Electrolytes Into Wood, and with Forced Penetration of Liquids Into Wood and Its Relation to Structure, Temperature and Pressure, describing in greater detail the work done to date and presenting the results obtained in the form of numerous tables and graphs.

Frank Mitchell, of Abitibi, who was in the chair, foresaw several interesting and valuable applications of the work. As reference had been made to the precipitation of calcium salts in sulphur dioxide solutions on heating, he enquired whether this would interfere with penetration of the wood by the liquor and with the efficient operation of heat-transfer equipment. Dr. Maass replied that the system was an extremely complex one, depending on the proportions of lime, sulphur dioxide and water, as well as on temperature and pressure; and the presence of wood still further complicates the problem on account of the changes in concentration produced by sorption. It is hoped to extend the investigation to a study of the conditions existing in sulphite cooking, but this point has not yet been reached. Mr. Richardson who, in the course of his paper, had mentioned that the fiber-length of wood could be deduced from sorption and penetration measurements, replied to a question of Mr. Mitchell that the method was of merely theoretical interest at the present time; it could not be used as a practical method of fiber-measurement,

as one determination would require about four or five days.

Dr. Emil Heuser had a word of commendation for the splendid manner in which the work had been planned and held it up as an example which might profitably be followed in many other cases. Valuable results had already been reached in the present instance by the collaboration of the botanist and physical chemist, and quite probably the help of the biologist and of the chemist would be enlisted before the whole investigation was completed.

Research Under Co-operative Scheme Reviewed by Prof. Hibbert

Prof. Harold Hibbert then gave a short review of the work accomplished to date under the co-operative scheme of pulp and paper research entered into some five years ago by the Canadian Pulp and Paper Association, the Pulp and Paper Division of the Forest Products Laboratories and McGill University, and concluded with an earnest plea for presentation by the technical men to the executives of the industry of the disastrous results which would ensue from the breaking up of the agreement which has already given such useful results and which promises much greater benefits to the industry in the near future.

Synthesis of Artificial Silk from Glucose

The session was brought to a close by a paper presented by J. Barsha, on The Synthesis of Artificial Silk From Glucose. The action of Acetobacter xylinum on a number of sugar-like substances was studied at the Institute of Pulp and Paper Research. It has been possible to demonstrate, for the first time, the conversion of glucose into a product which was shown to be identical with ordinary cotton or wood cellulose. Whether cellulose is formed through glucose as intermediate or directly from simpler substances is still an open question, and present investigations are intended to throw light on this matter. Fructose and glycerin have been subjected to bacterial action, and present results indicate that the products are true cellulose.

Informative Address by Dr. Herty on Southern Woods

On Thursday afternoon the Section was privileged to hear an address by Dr. Charles H. Hetry on the possibilities of Southern Woods for Pulp and Paper. In a very simple but most convincing manner Dr. Herty explained how generously nature had endowed the Southern United States to enable them to furnish a tremendous supply of pulpwood in perpetuity.

Of the various species of trees which grow naturally in this region, slash pine (Pinus heterophylla) possesses a number of advantages which make it preeminently suitable as pulpwood: (1) the heartwood, which prevents it from being pulped satisfactorily by the sulphite process, begins to form only at the age of about 25 to 30 years; (2) at the age of 10 years it is large enough for use as pulpwood, while at 20 years the stands must be thinned by removing 800 out of every 1,000 trees so as to obtain the maximum production of lumber per acre; (3) it grows well anywhere from the seacoast to the top of the Blue Mountains and comes well on either wet or dry ground; (4) it produces more wood per acre per year than any of the other pines growing in that region; (5) though it gives a better yield of high-grade naval stores than any other pine growing in that region, the resin content of standing young slash pine is actually only about 1.25 to 1.50 per cent, which is but very little more than Canadian spruce; (6) it is easily pulped by the sulphite process yielding as easy-bleaching pulp as Canadian spruce; (7) it is easily ground, giving a lighter colored pulp than Canadian spruce. The potentialities of establishing a newsprint industry in the South are most forcibly brought out by stating that a 100-ton mill could supply its pulpwood requirements in perpetuity by means of slash pine, assuming the surrounding country was planted exclusively with slash pine, with a maximum haul of 5 miles and an average haul of only three miles.

As Dr. Herty's conclusions were based on definitely proved figures, there was not much room for discussion; but the comments which followed the address showed that the hearers could not but see the pointed, though perhaps unintentional, relationship with Dr. Mees' address of the previous day. Should the establishment of a Southern newsprint industry materialize, the whole Canadian newsprint industry, representing an investment of hundreds of millions of dollars, would immediately be threatened with obsolescence; and the very best form of insurance against such a contingency was to intensify research work, such as was being carried on at the Pulp and Paper Research Institute, in order to develop new uses for paper or special properties which would enable Canadian pulp or paper to hold its own in the world markets.

Practical Pyrites-Burning Equipment Described

Horace Freeman, who has spent many years in developing a pyrites burner to meet the requirements of the sulphite manufacturer so as to make the Canadian sulphite and newsprint industries independent of United States sulphur supplies, described the construction of the commercial unit which was installed some time ago at the Cap de la Madeleine Division of Consolidated Paper Corp. and which has now been transferred to St. Lawrence Paper Mills owing to the closing of the Cap de la Madeleine mill.

The raw material is in the form of flotation concentrate, which can be obtained from several Canadian sources with a guaranteed minimum sulphur content of 50 per cent. It is burned in a flash roaster comprising a feed hopper, a ball mill in which the concentrate is brought into suspension in air, a fan and a pipe line to inject the mixture of air and pyrites into a specially designed combustion chamber where a temperature of 1150 deg. is developed. This is sufficient to cause dissociation of sulphur trioxide, and in this respect the combustion is superior to that of sulphur which does not generate such a high flame temperature. The desulphurization of the iron oxide is practically instantaneous and complete, the gases are rapidly cooled, a water-tube steam boiler having been found the most practical form of equipment for this purpose. More than one pound of steam is generated for each pound of pyrite consumed. The rapid cooling prevents sulphur trioxide formation and less than 0.1 per cent of sulphur trioxide is found in the exit gases. At the exit of the boiler the gas is at a temperature of 250 deg. C., and it is further cooled and washed from impurities and dust by counter-current washing in a tower packed with acidproof tiles and suitably designed for the amount of gas to be handled.

Mr. Freeman went on to discuss and answer a number of questions which had been put by paper mill men at various times. He was convinced that his pyrites-burning equipment was both theoretically and practically sound, and it now remained only to wait for the results of actual operation on a commercial scale for a sufficient period to see what it could actually do. It was worth while mentioning, however, that at St. Lawrence it was making a raw acid with a total sulphur dioxide content of 4.7 per cent, which was fully as high as is obtained with most sulphur burners.

Pitch Troubles Eliminated in Newsprint Manufacture

The last paper on the agenda furnished a striking example of the advantages which could be obtained by proper application of the results of the investigations carried out at the Pulp and Paper Research Institute. Starting from the work of J. B. Phillips on the resins of jack pine, O. Brauns, of the research department of Abitibi Power and Paper Co., succeeded in eliminating pitch troubles on the paper machines at one of the divisions of the Abitibi company. Pitch troubles were shown to be due to the occurrence of two distinctly different phenomena: (1) agglomeration of pitch due to the coagulating effect of positively charged electrolytes in the fresh water, in combination with mechanical agglomeration; (2) general stickiness at the machines due to the presence of free, although well dispersed, pitch in the stock. The first difficulty was overcome by utilizing the peptizing effect of waste liquor in conjunction with violent agitation in the screens, and addition of alum; the second difficulty was eliminated by the addition at the machines of alum in such quantities as are required to effect a fixation of the pitch to the pulp. The amounts of chemicals added are very small, 50 gallons of waste liquor per ton of sulphite and about 2 to 3 lbs. of alum per ton of paper; and though they are not washed out, no appreciable injurious

effect on paper machine clothing has been noticed as yet. The addition of waste liquor slightly increases foaming at the screens, but not sufficiently to cause any trouble. So far the method has been applied only in the manufacture of newsprint.

Election of Officers of Technical Section

D. L. McLeod, of Ontario Paper Co., was re-elected Chairman of the Section, and S. E. Kay, of International Paper Co., and W. B. Scott, of the Laurentide Division of Consolidated Paper Corp., were elected Councillors to succeed J. O. Mason and C. B. Thorne, whose terms had expired.

Woodlands Section Holds Meeting

While the Technical Section was holding its sessions, the Woodlands Section was doing equally good work. In the course of its two-day meeting it heard and discussed seventeen papers presented by its members and dealing with a wide variety of problems of interest to the forester, ranging from "Bucksaws' Efficiency" and "Radiophones and Bush Telephones" to "Feeding Men" and "Forest School Curricula and the Needs of Our Woods Operations."

Annual Meeting of the Canadian Pulp & Paper Association

At the annual meeting of the parent association, held on Friday, January 29th, the president, in his address, reviewed the difficulties faced by the various branches of the industry, and more particularly by the newsprint mills, during the past year. It was gratifying to note, however, that, in spite of the many problems which the association had to contend with during the past twelve months, the president was able to report that, as a result of the putting into effect of measures of economy in all departments in order to meet the situation created by reduced income, the association was able not only to balance its budget, but to bring forward a small surplus of slightly more than $1,000. This was accomplished without impairing in any way the service which the association was able to render to its members. In view of the fact that the crisis had been particularly severe in the newsprint branch of the industry, the dues of the newsprint mills had been reduced by half. The considerable loss in revenue which would result from this step would be offset, but only to a slight extent, by an increase in the dues of some of the other classes of members, and as a result the most rigid economy would have to be practised. It had, therefore, been found that it would be necessary to reduce and perhaps cancel entirely for the present the association's contribution to the co-operative research agreement into which it had entered with McGill University and the Forest Products Laboratories of Canada.

Plea for Continued Research

Frank Mitchell, on behalf of the Technical Section, presented a very forceful plea for very earnest consideration of the whole problem by the executives of the association before definitely committing itself to a reduction of the grant. The total contribution of $27,500 a year was a very small price indeed for the benefits that the industry was even now deriving from the work already carried out, and the numerous reports presented before the Technical Section promised much more fruitful results.

As the main difficulty in continuing the grant seemed to be the reduction in income derived from the newsprint members of the association, Mr. Mitchell laid particular stress on the advantages which the newsprint mills had already derived from the research carried out to date. No modern newsprint mill would dream for a moment to dispense with close control of the quality of its groundwood, and every Canadian newsprint mill is right now carrying on this control by means of an instrument which has been brought to its present high state of perfection in the Forest Products Laboratories.

By application of the principles found by J. B. Phillips in his fundamental research on resins of jack pine, the research department of the largest Canadian producer of newsprint had succeeded in rendering quite harmless the pitch which is a source of ever-recurring troubles in such a large number of mills.

Dr. Herty's paper, delivered before the Technical Section on the previous afternoon, revealed a potential threat to the Canadian newsprint industry which, if it materialized, might well put our newsprint industry in a much worse position than it is at present. There was only one way of meeting this threat, and that was by intensive research; and it would be too late to start in when a strong newsprint industry would have been established in the South. This development must find the Canadian industry armed and ready to meet the competition. There was urgent need for increased research, and for no consideration should it be reduced.

The president informed Mr. Mitchell that, at the last meeting of the executives of the association, he had been appointed a committee of one, with power to add to his number, for the purpose of carefully studying the matter and reporting back to the executives. He invited Mr. Mitchell to appear before the committee and to present his case as forcefully and clearly as he had just done to the meeting.

Harold Crabtree Re-elected President for Third Term

The anuual meeting was brought to a close by the re-election of Harold Crabtree, of Howard Smith Paper Mills, as president for a third term, and by the election of Dr. J. S. Bates, Price Bros. & Co., E. A. Charlton, Canadian International Paper Co., and H. E. Patterson, Abitibi Power and Paper Co., as representatives of the association on the Joint Administrative of the Pulp and Paper Institute.

◆ Research in the Pulping of Woods Other Than Spruce

Challenging possibilities for the profitable utilization of little-used species, small and defective trees, and logging and milling wastes, are indicated in the annual report of the U. S. Forest Service recently issued. Pulping research with Douglas fir at the Forest Products Laboratory, Madison, Wis., yielded good results, bleached pulps, suitable for book and bond papers, having been produced by a modified sulphate process. Experimental sulphite pulp of Douglas fir also yielded fairly satisfactory stock of a bleachable character when the usual lime base was replaced by ammonia, and a recovery system for the chemicals used is now being worked out.

Reference is made in the report to the results of laboratory research on the pulping of southern woods, a field in which interest is running high at present, owing to the investigations of Dr. Charles H. Herty, who is at work on the construction of a mill at Savannah, Ga., for the utilization of slash or Cuban pine as a source of sulphite pulp and of groundwood for newsprint paper. Experiments have demonstrated that the commercial sulphite process gives satisfactory pulps from slash pine free of heartwood, and earlier investigations have shown that groundwood pulp of satisfactory color and average strength can be produced from young slash pine with reasonable power expenditure. While rapid growth of the tree is eminently desirable for maximum volume of pulps, late studies prove that as a rule slow-grown material yields pulps of somewhat higher strength. Some compromise between extremes of growth is therefore in order.

For most commercial white papers resin-free wood is essential. A new pulping process developed by the laboratory may, however, effectively eliminate this requirement. It consists, according to the annual report of the Forest Service, of a "semichemical" impregnation treatment of the wood with sodium sulphite and sodium bicarbonate, followed by ordinary calcium sulphite cooking. Applied to resinous longleaf and slash pines, it is said to produce a strong bleachable pulp comparable in quality to standard sulphite. The modified sulphate or kraft process gave an excellent account of itself when applied to slash pine, as was confidently expected from the experiments with loblolly and longleaf previously reported.

The horizon of usefulness as papermaking material not only for southern pines but also for a large group of northern and western species will be indefinitely widened if certain new processes now under study, which have been successful experimentally, prove adaptable on commercial scale operation.

Studies bearing on the technical control of papermaking and the evaluation of paper and pulp have been vigorously prosecuted at the Forest Products Laboratory with the ultimate object of developing to the full the potentialities of any pulpwood under investigation as

paper material. An important feature of the work was the installation on the laboratory paper machine of specially designed equipment to give positive control of all operating variables, including the speed of drive in all sections, press and calender pressures, the temperature of stock and of driers, and shake frequency.

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◆ Liquid Caustic as Compared with Solid or Flake

That there is much to be said in favor of using liquid caustic soda in place of flake or solid caustic appears evident in a booklet just issued by the Columbia Alkali Corporation, Empire State Building, New York City, which contains much information of interest to pulp and paper mill engineers. By means of a large chart a saving in purchase price is demonstrated in favor of liquid over solid at freight rates below 37c per 100 lb. and over flake at freight rates below 80c per 100 lb. There is a differential in price at works between the three physical forms which makes this possible.

Assuming an annual consumption of 1,000 tons of 98 to 100 per cent solid caustic soda (76% Na_2O) at a location where the effective freight rate on solid is 19c per 100 lb., and on liquid 16½c per 100 lb., the chart shows there would be an approximate saving of $4.40 per ton if liquid caustic were purchased in place of solid. This would accordingly mean a saving of $4,400 in the purchase price of the amount of caustic soda consumed annually in this instance.

Local conditions might cause a variation in the actual amount saved in handling by the use of the liquid form, which could be calculated by noting the cost of unloading cars, handling to and from storage and dissolving the annual requirement of either solid or flake caustic soda, as compared with the cost of handling an equivalent amount of liquor in tank car lots.

As to the capital investment necessary in changing from the use of solid or flake caustic to liquid, this would include (1) a storage tank; (2) pipe lines for conveying liquor to and from storage; (3) a steam line at the car unloading point for winter unloading; an easy means of transferring the liquor —either centrifugal pump or air pressure. As part or all of this equipment might be already at hand any new expenditure necessary would be correspondingly lower.

Some of the advantages claimed for the employment of liquid caustic soda include (1) lower cost per 100 lb. of NaOH delivered at plant, where freight rate is below approximately 37c per 100 lb.; (2) lower cost of handling at plant, this involving simply the transferring of the liquor via pipe line from tank car to storage tank and again by pipe line from there to operation, while the handling of solid or flake necessitates the use of labor for unloading the car, transferring the drums to storage, bringing them out of storage to the point of dissolving, opening the drums and dissolving the caustic, and disposing of the empty drums; (3) cleaner and more efficient operation; (4) a greater factor of safety owing to the convenience and efficiency with which liquid caustic soda can be handled.

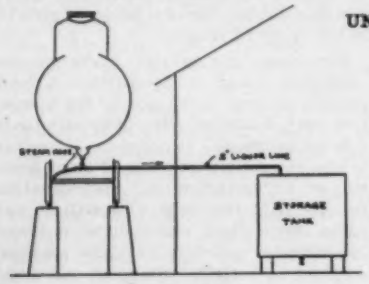
The accompanying illustration shows the four principal methods of unloading and handling liquid caustic soda.

Columbia liquid caustic soda averages 50 per cent NaOH in a clear solution having a specific gravity of 1.50 to 1.53 and weighing from 12½ to 13 lb. per gallon. It remains liquid at ordinary temperatures but starts to crystallize below 55 deg. Fahr. Tank cars of 8,000 to 10,000 gallon capacity are used for shipment and are equipped with heating coils for cold weather use. Cold weather handling, however, is no longer an operating problem, it being necessary only to follow carefully certain routine procedures during cold weather months.

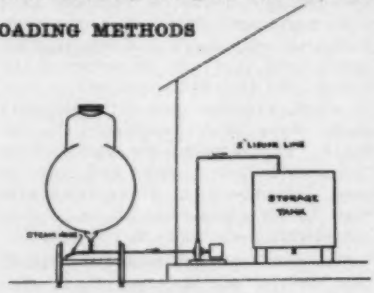
As will be seen by reference to the illustration of unloading methods, these consist of a gravity method where the liquor flows to storage under the pressure of its own weight; a pumping method, an air pressure method and a steam syphon method. As to storage tanks and their location, it is suggested that storage capacity be provided for at least two to three weeks' supply, and that in no case should a storage tank be less than 12,000 to 15,000 gallon capacity. The size and number of storage tanks are dependent necessarily upon the annual consumption of caustic soda, as well as the time and transit of shipments and the reserve supply required. They should be located inside a building wherever possible, and preferably at a point where the year-round temperature is above 50 deg. Fahr.

The most satisfactory storage tanks for liquid caustic soda are usually the horizontal cylindrical type made of not less than ⅜-inch boiler plate steel of riveted and welded construction throughout. All outside storage tanks should be provided with a heating coil consisting of at least 50 ft. of 2-inch pipe as an insurance against the possibility of crystallization taking place in cold weather; where tanks and pipe lines are exposed to cold weather they should be insulated, a 2-inch layer of hair felt covered with weather paper being suggested for storage tanks. The cold weather behavior of liquid caustic soda is, however, no deterrent to the consumer who contemplates a change from the solid or liquid forms. A number of the large consumers today, most of whom are in that part of the country where severe weather is experienced during the winter, use the liquid form the year round without difficulty.

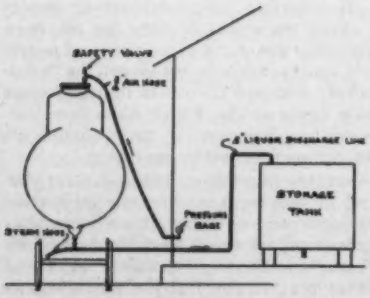
UNLOADING METHODS



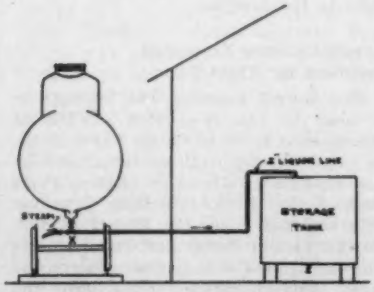
GRAVITY METHOD



PUMPING METHOD



AIR PRESSURE METHOD



STEAM SYPHON METHOD

◆ Dr. Charles H. Herty to be Honored

Dr. Charles H. Herty, of New York, who is now directing the construction in Savannah, Ga., of a mill for the pulping of slash pine and its conversion into newsprint paper, has been awarded a medal of the American Institute of Chemists "for noteworthy and outstanding service to the science and profession of chemistry in America." The medal will be presented at the annual meeting of the institute in New York in May.

POWER

GENERATION + UTILIZATION + MAINTENANCE

By W. S. JOULE

This section turns the searchlight on power and its allied problems, showing big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

◆ Detecting Sulphuric Acid in Lubricating Oil

As sulphuric acid in lubricating oil may cause many different sorts of trouble, it is important to be able to detect it easily and quickly. Sulphuric acid, as such, is used in oil refining but is usually removed by the refinery in its free state. Sulphur, however, may sometimes be found.

At the higher temperatures, sulphur—when present — and especially where moisture is also present—will combine with the oxygen of the air to form sulphur dioxide. This, in turn, combines with water to form sulphuric acid so that extensive corrosion may exist unsuspected, doing intensive or extensive damage.

Fortunately the presence of sulphuric acid can be easily detected by a simple test. Place a few ounces of the oil to be tested in a clean and absolutely dry test tube. Add an equal quantity of gasoline. In a separate tube dissolve a pinch of barium chloride in about one ounce of water. Drop a few drops of this solution into the mixture of oil and gasoline. Shake thoroughly. If there is any trace of sulphuric acid, a whitish precipitate will fall to the bottom of the tube.

If the tests are made because corrosion has been discovered and they show that sulphuric acid is absent, then search should be made for the presence of organic acids which may also be corrosive. Sulphuric acid should always be sought out first, however.

◆ Grooved Commutator Improved Cooling

Commutators are often slotted or grooved so as to prevent high mica. Slotting enables the commutators to remain in service longer without grinding or sanding down, lessens sparking, increases brush and commutator life. The practice is particularly common for streetcar motors and mines and wherever much dirt is encountered and heavy overloads and abuse may be expected; and where motors are inaccessible.

Slotted commutators tend to prevent the accumulation of dirt and carbon dust, as they are thrown out from the commutator by centrifugal force instead of collecting in the slots. Another advantage of the slots is that they act somewhat like a fan, churning up the air around the circumference of the commutator and so bringing about an effective cooling effect. In one recent instance where high mica had developed almost incessantly and severe sparking was persistent, it was found that both had been eliminated after the commutator had been slotted. Further, the commutator ran cooler, so enabling heavier loads to be carried without sparking. The lower temperature was undoubtedly due to the elimination of sparking, the better contact of brushes and commutator and the increased cooling effect of the slots.

Another way of increasing the cooling of commutators consists of building a series of vanes around the perimeter of the commutator. These may be built of sheet fiber or similar material, which is an insulator and non-magnetic. There should be one vane per commutator bar or every few commutator bars, arranged like the blades of a steam turbine. These may be covered with a band around the entire circumference. While many manufacturers now provide these, home-made vanes may be made quite readily with marked improvement in cooling as the result of their installation.

◆ Giving Turbine Lubrication the "Once Over"

While the lubrication of steam turbines usually receives considerable attention at all times, it is particularly important to watch the oil in hot temperatures. Where plants have been shut down due to repairs or slackness and where a personnel has been changed or curtailed, there is increased likelihood of defects being allowed to crop up in connection with steam turbine lubrication.

Thermometers originally located so as to measure the oil temperature as it enters and leaves the cooler, are sometimes allowed to get broken without being replaced. Broken thermometers should be replaced and the readings of these thermometers should be checked from time to time. Oil pressures should be watched and the oil coolant should be checked against leakage from time to time. A failure of the pressure may be due to a bursted pipe or a choked strainer, a break down of the pump or an oil leak and these facts should be brought to light without loss of time.

The effectiveness of the cooler is of the utmost importance. Its efficiency is frequently cut down due to the tubes becoming covered with a deposit or due to the oil flow becoming short-circuited. All oil pipes should be braced so as to be free from chafing and vibration. All joints should be maintained oil-tight, of course. Brown paper, coated on both sides with a shellac varnish, serving as a very satisfactory gasket for making joints between machined surfaces.

Where a new turbine is placed in service, or a machine which has been overhauled has been out of service for a considerable length of time, it is well to change oils after 75 or 100 hours of operation; or at least to filter the oil carefully, since a surprising amount of dirt may collect.

◆ The Draft Gauge Is a Key Instrument

Strangely enough, the one thing which is ignored in the design and layout of the majority of power plants is provision for a definite, well-planned air supply. Yet the amount of air handled—that must be delivered to the plant, and then disposed of—must be many times greater than the coal handled. For example, from 12 to 50 lbs. of air are used per pound of coal, while the pounds of water per pound of coal will be in the neighborhood of 6 to 10.

It is the ability to get sufficient air through the fuel bed and to dispose of it when it has served its purpose that determines the capacity of the boiler room, the efficience of combustion, freedom from smoke, the size and grade of coal that can be used and the maximum output per boiler.

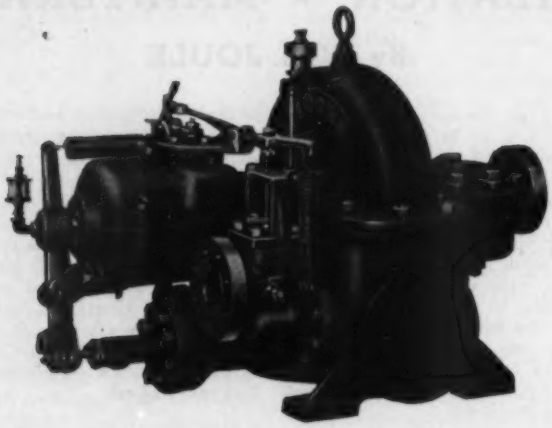
The problem of air supply, air measurement and control is a matter second to none in importance; therefore many hundreds of plants are burning costly large coal sizes because they have not sufficient draft to burn the cheapest sizes. Hundreds of plants are using much larger sizes than they need—just because they fail to employ the draft gauge to find out what draft they have available. It can truly be said that a furnace or boiler is no better than its draft.

It is even more necessary to measure the air component of the fuel than it is to measure the carbon component, meaning the coal or the oil, because the air measurements tell the whole story of what is going on, what is happening and why.

◆ CERTAIN grades and sizes of coal "burn better" when wetted down or tempered, the effect being purely mechanical and in no way chemical. Usually 1½ to 5 per cent of water by weight will suffice, any excess merely wasting heat units without any corresponding mechanical advantage.

◆ Moore Announces New Steam Turbine

To meet the need for a highly efficient and reliable steam turbine for sizes up to 60 h.p., the Moore Steam Turbine Corp., Wellsville, N. Y., have placed on the market a new turbine, known as their type U2RA.

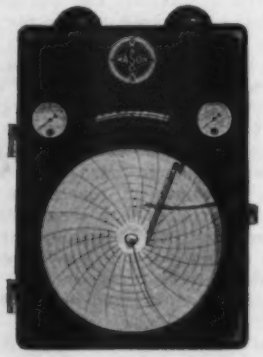


This turbine has all essential features found in the larger turbines, such as horizontally split casing, carbon packing, emergency overspeed governor with independent trip valve, hardened tool steel governor wearing parts, babbitted bronze-backed split bearings, water cooled bearing cases, stainless steel governor valve and valve seats, heavy blading of stainless steel or nickel steel, and auxiliary nozzles for overload. Low steam consumption is secured by the use of a highly efficient turbine wheel of ample diameter. The turbine is of rugged construction throughout; of cast iron construction for moderate steam pressures and of all steel construction with centerline support for steam pressures up to 600 lb. and temperatures up to 800 deg.

The turbines are made on a production basis and shipment can usually be made in one week or less.

◆ New Mason Pressure Instrument

A newly developed line of pressure control instruments is being announced by the Mason Regulator Co. of Boston. The Mason Recording Pressure Con-



troller shown in the accompanying picture has been developed especially for the processes of the paper industry.

Among the many advanced features embodied in these Mason instruments is the novel Mason Rota-Port Synchronizer. This exclusive development permits these controllers to be instantly synchronized with the speed of any process. A perfected, balanced compound pilot valve enables pressures to be maintained precisely. This further provides the straight line function. That is, definite increments of movement of the control element produce uniform increments of movement of the diaphragm control valve. To insure long, trouble-free service all working parts are machined of stainless steel.

Descriptive literature may be obtained from the Mason Regulator Co., 1190 Adams street, Boston, Mass.

◆ Washing Paper Mill Felts

A material suitable for washing paper felts should give a solution which will thoroughly penetrate the fabric, lift the dirt from the cloth and hold it in suspension and, perhaps most important of all, one which can be quickly and thoroughly rinsed out. Philadelphia Quartz Company state that tests show mixtures of their sodium metasilicate and soap to possess these desirable properties and mills where these trials were made have adopted such a formula in regular practice.

One mill is washing the felts with a solution of 10 lb. sodium metasilicate and 10 lb. soap in 50 gallons of water. They consider the results to be superior to those previously obtained when using trisodium phosphate.

Two other mills are using 8 lb. sodium metasilicate and 2 lb. soap in 50 gallons of water. One mill formerly used 35 lb. soda ash and 5 lb. soap. It took 90 minutes to wash and rinse a felt using the ash-soap mixture. Using sodium metasilicate, it required only 45 minutes.

Another large fiber board plant wash their felts by removing them from the machine and dipping into a tank containing a solution of 2 lb. sodium metasilicate, 2 lb. soap and a very small quantity of wetting agent called Neomerpin S. A. A new solution is made for each felt. They claim this formula to be the most satisfactory ever tried by them and several days more run is being obtained from the felts so washed.

◆ New Catalogues and Publications

America Delthirna Corporation, Mansfield, Bolton & Kent, Inc., 501 Fifth Avenue, New York.—An attractive bulletin shows the design and operation of the Delthirna sizing process which is in use by nearly 200 mills in twenty-one countries at a demonstrated saving. A point which is brought out in this new, attractive 8-page bulletin is the utter simplicity of the Delthirna sizing system, which does not require a chemist or even a skilled man to operate it. The automatic character of the system makes it possible to operate a unit dissolving 1,000 lb. of rosin a day, with a labor requirement of no more than two hours of one man's time. One of the selling points made in this bulletin is that Delthirna units can be installed to fit any particular mill condition.

Goulds Pumps, Seneca Falls, N. Y.—This company's new catalogue for 1932 represents a radical departure from its previous practice in that all of its complete line of farm and industrial pumps have been combined in one volume. Fully described and illustrated are many of the company's newly developed pumping units including the new CED pumps for shallow and deep well use. There are a number of tables, including water requirement calculations, pipe friction losses, hand and pressure equivalents and other valuable information. Copies on request.

Hercules Powder Co., Wilmington, Del. —In the January number of *The Hercules Mixer,* this company's magazine, the general managers of the various departments of the company have expressed their opinions in various articles as to the outlook in several major industries. Of special interest to readers in the paper field are two articles: The Outlook in Cellulose Products, by A. B. Nixon, general manager of the Cellulose Products Department, and The Outlook in Paper-Making Chemicals, by W. J. Lawrence, president of Paper Makers Chemical Corp., an affiliated company.

E. D. Jones & Sons Company, Pittsfield, Mass. — Two bulletins issued the first of the year describe Jones Mechanical Laboratory and Jones Bandless Plug, respectively. The Jones laboratory is operated for the convenience of users of the paper mill machinery made by E. D. Jones & Sons Company. A 15-lb. iron tub beater that is used in conjunction with laboratory work is illustrated with other apparatus, including a commercial size beating engine and stuff chest, as well as testing instruments, a view of the laboratory being shown. In the text an instance is given of a specific case where faulty beater room conditions had been corrected through a survey of operations by an engineer from the laboratory.

The bandless plug bulletin describes the construction and operation of the special jordan plug made and marketed by the firm. It is a feature of the Jones bandless plug that it can be supplied with any thickness of bar or any spacing desired. Details of the plug are effectively illustrated.

E. J. Lavino and Co., Philadelphia, Pa. —A new pamphlet has just been received featuring Improved Lavino Chrome Brick, made by the company's new process. The results of tests on this brick are set forth in the bulletin and one page is devoted to the use of this new "Improved" brick in Kraft recovery furnaces, with diagrammatic sketch of a circular kraft recovery furnace.

The MONTH at WASHINGTON

Reconstruction Finance Corporation—By far the most outstanding legislation of this session of Congress is H. Res. 7360 recently enacted, by which a corporate body was created known as the Reconstruction Finance Corporation. The principal office of this corporation will be located in the District of Columbia, but if prescribed by its board of directors, agencies or branch offices may be established in any city of the United States.

This corporation will have a capital stock of $500,000,000, subscribed by the Government, payment for which shall be subject to call in whole or part by the board of directors of the corporation.

The purpose of this corporation is to provide emergency financing facilities for financial institutions, to aid in financing agriculture, commerce and industry. All loans made must be fully and adequately secured.

The management of the corporation is vested in the following board of directors who have been appointed by President Hoover and approved by the senate: Charles G. Dawes, president; Eugene Meyer, Governor of the Federal Reserve Board, chairman; Ogden L. Mills, who will succeed Andrew Mellon as Secretary of the Treasury; Paul Bestor of the Farm Loan Board; Harvey C. Couch, Arkansas; Jesse H. Jones, Texas, and Wilson McCarthy of Utah. G. A. Marr, of Salt Lake City, former general counsel of the War Finance Corporation, has been retained by the board as general counsel. The identity of the corporations and banks to which loans are made will not be made public. However, loans to railroads will be revealed since they are subject to approval by the Interstate Commerce Commission. So far, applications have been made for some 100 millions in loans.

It is reported that the first purpose of the corporation will be to seek out the weakest places in the country's financial structure. By providing credit to relieve such weakness, the belief is that more can be done to improve the general situation than by any other plan. It is believed this will bring easier money thereby reviving business.

Tariff and Other Bills—Changes in the Tariff Act are rapidly assuming shape in both houses of Congress and will shortly be offered to the President for his approval or rejection. One of the amendments provides that when a recommendation is made by the Tariff Commission the change recommended by report to Congress shall take effect 60 days after the date of the report unless Congress shall have acted within that time to reject the report. This relates to any changes in duties because of lowered or higher costs of production of any domestic article. The Tariff Commission reports to both President and Congress. The bill extends the authority of the Commission to initiate production cost studies and also seeks a world conference on tariff questions.

Senator Wagner reintroduced a bill to provide for the establishment of a national employment system and for co-operation with the states in the promotion of such a system. He said that his new bill overcame the objections and grounds on which the President at the last Congress vetoed the bill. The bill provides for the establishment of a Federal Advisory Council and for State Advisory Councils composed of men and women representing employers and employees in equal numbers for the purpose of formulating policies and assuring impartiality in solution of problems.

Congressman Lewis has introduced a bill (H. R. 7448) which would give protection of law to the worker's right to work and guaranteeing him an equal share of the employment available, forming trade associations for industries and their employees doing an interstate business, in order to enable such industries to stabilize business and to provide certain benefits for their employees, such as life and disability insurance, workmen's accident compensation, workmen's pensions, unemployment insurance, and imposing certain excise taxes in connection therewith.

Congressman Vestal has again introduced his trade-mark bill (H. R. 7118) to protect trade-marks used in commerce and to authorize the registration of such trade-marks, which went by the boards at several preceding Congresses and several times passed one of the houses of Congress only to get tied up in the other when the session ended. In the Senate, Senator Hebert introduced a similar bill (S. 2679).

Studies of Bankruptcy — Inefficient business methods and practices resulted in more failures than any other cause, according to a study of 612 bankruptcy cases and other business failures, recently completed by the Department of Commerce. The purpose of the study was to prevent failures, to some degree at least, by ascertaining their causes and pointing out how to avoid causes which produce failure or bankruptcy.

1929 Census—"Paper and Allied Products," being the 15th census of the Census Bureau, covering manufactures for 1929, has just been released in pamphlet form by the Bureau.

Obsolete Mailing Lists—Obsolete mailing lists cost advertisers large sums yearly, says the Post Office Department, charging that direct-mail advertisers in the United States wasted nearly $325,000 during the fiscal year 1931, because they used obsolete mailing lists and failed to use return address envelopes. During the year the dead letter division received 6,450,164 letters containing advertising matter, with circulars comprising about one-third of the contents, and all of which was mailed under first-class postage.

Interstate Commerce — Upon further hearing before the Interstate Commerce Commission, the Schroon River Pulp and Paper Company got a better ruling on certain shipments of bituminous coal from mines in Pennsylvania and West Virginia to Warrensburg, N. Y. (No. 22820.)

The Commission has vacated previous orders to permit proposed interstate rates on cordwood and pulpwood, in carloads, between points in Alabama on the Atlantic Coast Line Railroad to go into effect. (I. and S. Docket No. 3575.)

The Commission reversed its former findings on scrap or waste paper in carloads from, to and between points in southwestern territory (I. and S. Docket No. 3497) concerning rates between points in the southwest and Kansas-Missouri territory, and between points in such territories.

Revised Price Index— A revised wholesale price index, to be issued weekly as well as monthly, and to contain 784 different commodities or price series instead of 550, will be published this month for the first time, says the Department of Labor, so that industry may always be informed on the direction and intensity of economic activity.

Commercial and Industrial Organizations in the United States is the title of a new directory issued by the Department of Commerce showing the organized co-operation in American business. The directory contains the names of more than 19,000 organizations, or an increase of 45 per cent over the last edition (1929). The first manual of this kind was issued in 1912 when the total listings were only 3,200.

Wholesale Prices—The index number of wholesale prices as computed by the Bureau of Labor Statistics shows a minor decrease for December, covering 550 commodities, as against November, but 15 per cent under last year, same month. With 1926 as the basis of 100, we find the following changes for paper and pulp:

1930 December	1931 November	1931 December
83.5	80.4	80.8

Chain Store Report—The Federal Trade Commission has sent 3 chain store reports to the Senate, pursuant to Senate Resolution 224, 70th Congress, showing differences in purchasing practices, sources of purchase, number of retail and wholesale chains, co-operation with manufacturers, size of business, geographic distribution, etc., copies of which may be had by interested readers from the Commission upon application.

NORTHERN NEW YORK

◆ Lewis F. Lehr

Lewis F. Lehr, 66, president of the Malone Paper Co., passed away at Burlington, Vt., on Jan. 27. Mr. Lehr was one of the leading paper manufacturers of Northern New York. Born on a farm near Stone Mills, Jefferson county, he learned the paper making business in the employ of the St. Lawrence Paper Co. at Dexter. After a short time he was made general manager of the mill, a position he held for two or three years before going to Malone.

With Edwin S. Clark, Brayton R. Clark, Fred T. Ford, Mark S. Wilder and James A. Outterson, Mr. Lehr formed the Malone Paper Co., buying the plant of the Wead Paper Co. The company operated the mill until 1903 when it burned. Before the fire Mr. Lehr had gone to Pyrites as general manager of the Degrasse Paper Co., remaining there six years. The Malone mill was rebuilt and in operation in 1904. Mr. Lehr returned to Malone in 1909 and was made vice president and general manager. Following the death of H. V. Clark in 1930, he was made president of the company. He also served as director of the Malone Light & Power Co. and as vice president of the People's Trust Co. of Malone.

◆ THE SARANAC Paper Co., Inc., Plattsburgh, filed a voluntary petition in bankruptcy in federal court at Utica on Jan. 28. The board of directors authorized John F. White, as president, to file the petition which was not accompanied by schedules. Attorneys White & Case, 14 Wall St., New York City, represent the company.

◆ A TEN PER CENT cut in the wages of all employees receiving over 50 cents an hour and a five per cent cut for those receiving under 50 cents an hour went into effect at the plant of the Harrisville Paper Corp. early in January. In line with the economy program the position of assistant superintendent, held by George Pomeroy, was abolished.

◆ NILS TEREN, technical executive of the kraft mills of the St. Regis Paper Co., has resigned his position to accept a similar position in the Pacific coast mills of Mr. Leadbetter, his father-in-law, with headquarters in Portland, Ore. Mr. Teren was formerly with the Bates Valve Bag Corp. until its purchase by the St. Regis Co., since which time he has been affiliated with the latter concern.

◆ WILLIAM H. GROSSE of Deferiet has been awarded a patent which covers two claims on his invention of a suction box for paper machines.

◆ RAYMOND J. PARHAM, general sales manager of the St. Regis Paper Company with headquarters in New York, passed away December 29, at the age of 45. Mr. Parham became connected with the St. Regis Paper Company in 1912, when he joined the purchasing department of the company. His efforts won the commendation of officials and a few years later he was transferred to the sales department, and ultimately he became sales manager. Burial was in Watertown, N. Y. A widow and a daughter survive.

◆ FRANK A. AUGSBURY was re-elected president of the Algonquin Paper Co. of Ogdensburg at the annual meeting of the company Jan. 26. Other officers and directors were also re-elected.

◆ AT THE ANNUAL meeting of the directors of Regal Paper Co., Pulaski, on January 18, George D. Hull, sales manager, was elected a vice president. Other officers are: Earl H. Benson, president and general manager; Mrs. Edith D. Benson, vice-president; D. W. Benson, secretary and treasurer.

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◆ Kilberry Connects with Baker Corporation

Edward B. Baker, president of the Baker Corporation, Saratoga Springs, N. Y., announces the appointment of George D. Kilberry as chief of the engineering department of that organization.

Mr. Kilberry's accomplishments have given him an outstanding record. He has been personally responsible for the development of some of the most revolutionary and progressive innovations in papermaking machinery in recent years. He has been identified with the industry since 1907. Among the companies with whom he has been affiliated since that time are International Paper Co.; Rice, Barton & Fales; United Paperboard Co.; Dominion Engineering Works, Montreal; Downingtown Mfg. Co.

The Baker Corporation manufactures a very extensive line of process equipment for the manufacture of pulp and paper, and that company is to be congratulated upon the acquisition of Mr. Kilberry, whose experience and understanding of paper mill problems and their solutions will be a valuable addition to the organization.

◆ William D. Pomeroy

William D. Pomeroy, vice president, director and general manager of Goulds Pumps, Inc., Seneca Falls, N. Y., passed away January 6, 1932. Although Mr. Pomeroy had been in ill health for more than a year, his death was unexpected.

Mr. Pomeroy was 57 years of age, and was born in Utica, N. Y., where he received his early education, and graduating from Cornell University in electrical engineering.

Beginning his business career in 1901 he was for six years with the Bullock Electric Co., Cincinnati, a subsidiary of the Allis-Chalmers Mfg. Co. In 1907 he became associated with the Goulds Mfg. Co., working through the organization from works manager to the managerial position held at the time of his death.

The loss of Mr. Pomeroy will be keenly felt in his organization and community, and he will be missed by many friends throughout the paper industry.

◆ One Printing with 84 Color Combinations

A method of combination runs for meeting present-day needs of effective color utilization and real economy for producing entire campaigns of direct-mail with 12 colors and 84 variations in one printing operation, has been developed by the Appleton Coated Paper Co. of Appleton, Wis., in connection with its two-tone paper, Woodbine duplex enamel.

The plan is so arranged that any printer can handle the operation on his regular presses without change or new equipment, and fills a distinct need in economical direct-mail production.

Details of the plan are incorporated in a booklet, which may be secured free by writing to the manufacturer.

◆ New High Speed Towel Folder

A new high speed rotary towel folder has just been introduced by the Hudson-Sharp Machine Company, pioneer manufacturers of paper converting machinery at Green Bay, Wisconsin.

The new piece of equipment, which is ball bearing throughout, has been engineered with speed and accuracy as its outstanding features. All parts are designed and balanced to eliminate vibration and to provide extreme speed with practically no noise.

The new machine will produce from 30 to 40 cases of standard interfolded towels per hour or an output of from 240 to 320 cases in an eight-hour day.

These new type machines have been given comprehensive tests in some of the leading mills and have proved to be all that has been claimed of them. The Hudson-Sharp Company now has additional units in the process of manufacture.

◆ Hurja-Johnson-Huwen, Inc.

The corporate name of Hurja, Chase & Hooker Advertising Agency of Chicago, has been changed to Hurja-Johnson-Huwen, Inc., which is the original name under which the agency was founded over a decade ago.

Mr. Hurja is well known in paper mill circles, having served clients of the industry for the past 12 years. F. J. Huwen, vice president, has returned to the agency after an absence of several years devoted to sales management work in the oil-burner field. The personnel of the agency and its offices at 58 East Washington Street, Chicago, remain the same.

◆ F. M. STEPHENS, who recently resigned as vice president of the Bryant Paper Co., Kalamazoo, Mich., is now connected with the Sorg Paper Company, Middletown, Ohio, as sales manager of the Western District. Mr. Stephens is located in Chicago, having an office in the Daily News Building, 400 West Madison Street, telephone number, Andover 1563.

+ CANADIAN NEWS +

◆ Prospects for the Year

Canada's newsprint industry has closed one of the worst years in its short but turbulent history. It faces another twelve months of uncertainty, but it is a period which holds some promise of the settlement of one or more of the many problems confronting the manufacturers. In so far as production is concerned, the current year does not hold out much hope for any marked increase. Some newsprint operators do not look for a material advance in demand for paper until 1933, while others believe that the upward trend in demand will take place this year. Judging by the trend in advertising and the desire of the publishers to cut expenses, it is unlikely that there be any increase of a major size in newsprint consumption this year. Last year Canadian production approximated 2,250,000 tons, a drop of about 250,000 from 1930. Unless there is a marked change in business conditions and consequent resumption of advertising on a wide scale, it is considered improbable that the Canadian production in 1932 will show any material improvement over that of 1931.

There is little prospect of a price increase this year, or the next for that matter. Forces appear to be at work even now to effect another cut in newsprint prices, but it is likely that this attempt will be met by a more united front from the producers. The earning power of the operators will depend largely on the discount of the Canadian dollar.

With no increase in price likely and production at or around the current level, any increase in earnings must come either from the drop in operating expenses or through the premiums received on New York funds. Operating costs have about reached the bottom and little saving is to be expected in that direction, so that an improvement in earnings will most likely depend almost solely upon the trend of exchange. An improvement in financial position will hinge upon the outcome of the present negotiations looking toward a merger.

◆ Bates Develops Satisfactory Flour Bag

The Canadian Bates industry, Bates Valve Bag Co., using Canadian-made kraft paper from Dryden, Ont., and Three-Rivers, Que., has successfully developed a flour sack during the past year. In the hands of Bates engineers, the paper bag has become a giant of size and strength, three to five plies of sturdy kraft paper combining to carry 100 pounds or more of heavy materials, and to survive manhandling and weather.

Over 60 per cent of the cement shipped in the Dominion moves in paper sacks of this character, and now comes the flour bag. Early in the past summer the Bates officials felt confident enough of the latest model to build the actual machine, and a practical start was made at the Copeland Flour Mills, Midland, Ont. Ever since the installation at this point the machine has been in daily action, filling three pre-closed 98-pound bags per minute, without human hand coming into contact with the flour, and with an accuracy which the authorities have declared well within the legal tolerance.

It is reported that additional flour mills are contemplating signing up with the Bates Valve people during the coming spring and summer. This should furnish a welcome additional outlet for kraft paper, as it requires about 760 pounds of paper to manufacture 1,000 bags, and the Copeland mill has already shipped nearly 100,000 such bags to baking houses in Ontario, Quebec and the Maritime Provinces.

◆ THE JUDGMENT of the Supreme Court of Newfoundland, of June 23, 1930, which declared forfeit a license to cut timber in Labrador made between the Newfoundland Government and George Jardine in 1913, was discharged by a decision of the Judicial Committee of the Privy Council on January 12. Rendering judgment on the appeal of Jardine and Michael E. Martin against this Supreme Court judgment, their Lordships substituted an order declaring that the license in question (which covers an area of about 1,100 square miles at White Bear Bay, Labrador) is a substitute license.

◆ Claims Pulpwood Dues Not Collected

The December newsprint statistics are distinctly unsatisfactory from the point of view of the Canadian mills, with the ratio of production in that month falling off quite sharply nearly the lowest level on record. During December the mills in the Dominion operated at 51.3 per cent of rated capacity, with output at 165,173 tons, as compared with an output of 175,643 tons and an operating ratio of 56.8 per cent in November and 184,755 tons and 59.5 per cent in December, 1930. For the full year 1931, Canadian mills operated at 58.1 per cent of capacity, which compares with 69.4 per cent in 1930, while total production of 2,220,775 tons compares with 2,504,147 tons in 1930 and 2,728,827 tons in 1929.

In January, 1925, the capacity of the Canadian newsprint mills was 5,152 tons daily. This represented a monthly production, if working to capacity, of some 133,952 tons. Actual output that month was 121,420 tons, or about 90 per cent of capacity. Two years later, in January, 1927, capacity was up to 7,276 tons daily, or 189,176 tons for the month, as against actual output of 161,724 tons, a ratio of just under 89 per cent. By January, 1929, daily capacity was up to 10,018 tons, or around 260,000 tons per month; against this was output of 212,191 tons, or just under 82 per cent. By January, 1931, the output was increased to 12,376 tons daily, or about 309,000 tons monthly, as against actual output of 182,657 tons. Thus in six years the installed capacity of Canadian newsprint mills rose over 140 per cent; output as between the two dates had increased only some 50 per cent. Hence the low operating ratio in the industry today.

The value of newsprint exports from Canada during the month of December was $8,299,049, as compared with $8,801,532 in November, and with $12,469,546 in December, 1930. The large decline from the corresponding month of the preceding year is explained by the decline, not only in volume, but also in the price of newsprint.

◆ PRIME MINISTER R. B. Bennett has communicated with the Canadian High Commissioner in London, requesting Mr. Ferguson to ascertain the facts regarding the report that Russian interests and certain English importers were preparing to contract for the importation of a huge quantity of timber in 1932 and that English importers were urging the Imperial Government to give assurance that the contract would not be interfered with by tariffs and preferences to the Dominion. If the facts confirmed the report, Premier Bennett has asked the High Commissioner to take all action which was possible to obviate the possibility of any such guarantee and which would be detrimental to Canadian interests. Premier Tolmie, of British Columbia, has urged Premier Bennett to use his efforts through the Canadian High Commissioner in London, to obviate the possibility of any such guarantee to Russian and English importers, and Premier Taschereau, of Quebec, has wired Premier Bennett supporting Premier Tolmie's attitude.

QUEBEC

◆ Close Year at Low Operating Ratio

The annual report of Building Products, Ltd., for the fiscal year ended December 31, 1931, shows net profits at $263,820, against $326,434 in the preceding year. These earnings were equal to $2.18 per share on the combined A and B common presently outstanding, against dividend requirements of $2 per share. In 1930, per share earnings were $2.70. Working capital shows an improvement, standing at $1,894,092, against $1,827,925 the previous year.

In his remarks to shareholders President Philip R. Allen said that the introduction of new products, produced for the first time in 1931, helped maintain a good volume of business. During

the year a new factory for the production of premolded asphalt products was completed at Hamilton, Ont. In a few weeks the company expects to produce at this same plant asphalt floor tiles in various colors and, in addition, a new type of asphalt shingle for use in place of slate and tile. These articles have heretofore not been manufactured in Canada. A new siding, simulating brick, for use on the side walls of old buildings, will also be placed on the market early this year. Since replacements and repairs continue to be necessary, and as the company produces a complete line of materials used for these purposes, there is good reason to look forward with optimism to the coming year.

◆ Building Products Earnings Reduced

Negligence in the Department of Lands and Forests in collecting cutting dues, fines on pulp and paper companies, etc., is costing the Provincial Treasury $700,000 a year, Maurice Duplessis, Conservative M.L.A. for Three-Rivers, charged in the Legislative Assembly last month, prior to vote of $475,000 for forestry service and inspection. Mr. Duplessis asked that the Government establish a special organization within the Department to tighten up collections and thus bring aid to the Treasury at a time when the cabinet is levying new taxes on the people.

Hon. Honoré Mercier, Minister of Lands and Forests, denied the accusations and insisted that the policies of the Department had been directed toward stimulating the cut in the forests and thus giving work to men all over the province. In that he believed the Government had succeeded.

◆ WOODS operations of paper and lumber companies have been seriously interfered with throughout Eastern Canada this winter by unprecedentedly mild weather and consequent lack of snow. So far the snowfall has amounted to only about 8 or 10 inches, and except in especially sheltered positions all this snow disappeared soon after it had fallen, leaving the entire countryside bare, a condition unprecedented at this time of the year within living memory. Ice bridges on rivers and lakes have all been giving way and snow roads have disappeared, thus bringing to a standstill many of the activities connected with logging. Local meteorologists, however, say that there is still time for plenty of real wintry weather, and that it will not be long before there will be plenty of snow to facilitate lumbering operations.

◆ SALES of the products of the Consolidated Paper Corp., which has taken over Canada Power and Paper, are to be consolidated in the hands of the St. Maurice Valley Paper Co., one of the subsidiaries. Notice has been sent out by Wayagamack Pulp and Paper Co., a division of Consolidated Paper Corp., that all its existing orders and contracts for newsprint have been assigned to St. Maurice Valley Paper, and that the Hodge-Sheriff Paper Co. will continue as in the past to handle the sale of kraft pulp and kraft paper in Canada.

◆ THE BOARD of directors of Canadian Hydro-Electric Corp., a subsidiary of International Paper and Power, has declared the seventeenth regular quarterly dividend of $1.50 a share on the 6 per cent cumulative first preferred stock, payable March 1, to shareholders of record at the close of business February 1.

◆ TWO MORE ACTIONS arising out of the flooding of lands by the Gatineau Power Co., were disposed of by the Court of Appeals last month when the company's appeal from a decision of the Superior Court awarding Nicholas P. McGoey $5,163 was allowed and the amount of the award reduced to $500, and an amount of $8,500 awarded to P. Bertrand was reduced to $6,257.

◆ Hearst Renews Contract with Anglo-Canadian

Another disturbing complication has arisen in the newsprint industry if unconfirmed reports should prove correct. They are to the effect that the Hearst interests have renewed their contract with the Anglo-Canadian Pulp and Paper Mills at a favorable price. The rumor is accepted as correct in informed circles, and in that case not only has an interesting legal tangle been opened, but the position of the newly formed Consolidated Paper Corp. will be seriously affected.

Among the companies brought into the Canada Power and Paper Corp. (which Consolidated Paper supersedes) was the Anglo-Canadian organization, which had a contract with the Hearst interests expiring in 1933. At the time of reorganization of Canada Power and Paper, Anglo-Canadian dropped out of the combine and reverted to its independent status. Prior to this, Hearst made a contract with the Dominion Newsprint Co., a Hearst company in which Canada Power and Paper acquired an interest, to supply all the Hearst requirements, amounting to several hundred thousand tons a year, after the expiration of existing contracts. When negotiations of Dominion Newsprint for construction of a 1,000-ton mill in Newfoundland were indefinitely postponed, Canada Power and Paper took over the contract.

◆ TWO MILLS completed the six months' contest for the "Safest Mill in Canada" trophy awarded by the Pulp and Paper Magazine of Canada with clean slates. The Minas Basin Pulp and Paper Mills and the Mille Roches Division of Provincial Paper had no lost-time accidents from July 1 to December 31, 1931. The latter, with nearly twice the number of hours of exposure to hazard, is awarded the trophy in Class B. The trophy for Class A mills goes to Quebec, the Wayagamack Division of Canada Power and Paper Corp. (now Consolidated Paper Corp.) coming first with an accident index of only 0.020. Three other mills finished the contest with less than one day lost time per 100,000 payroll hours. The contest was won in 1930 by the Sturgeon Falls Division of Abitibi Power and Paper Co., and the Thorold Division of Provincial Paper.

◆ THE FREEMAN pyrites-burning plant which had been installed at the Cap de la Madeleine division of Consolidated Paper Corp. has been dismantled and re-erected at the St. Lawrence mill at Three-Rivers. This is a regular commercial unit and the change in location was decided upon on account of the shutting down of the Cap de la Madeleine mill, in order that observations might be continued on the operation of the system. It was modified, however, to the extent that the heat-recovery portion now consists of a water-tube boiler instead of the fire-tube boiler originally installed.

◆ AT THE THIRTY-SECOND annual meeting of the Canadian Forestry Association, held in Montreal last month, Frederick E. Bronson, of Ottawa, was elected president for 1932, succeeding R. O. Sweezey, retiring president. Robson Black, also of Ottawa, was chosen as vice-president, retaining at the same time his position of general manager of the Association.

ONTARIO

◆ THE NEWSPRINT mill of the Fort Frances Pulp and Paper Co., at Fort Frances, is now running full time with sufficient orders to keep it going until the middle of May, working at three-quarters of its capacity of 325 tons daily. The showing of the Fort Frances mill is in distinct contrast with the mills in the East, which are running at only about 50 per cent of capacity.

◆ Great Lakes Operating Profitably

Since the receivership of Great Lakes Paper Co., commenced on July 13, 1931, the results have shown an operating profit, without taking into account any amounts for bond interest and depreciation. This announcement was contained in a letter to holders of the company's first mortgage six per cent bonds, sent by the bondholders' protective committee, of which the Right Honorable Arthur Meighen, of Toronto, is chairman. There are $10,000,000 of bonds outstanding and interest due March 1 and September 1, 1931, have not been paid.

At the present time the mill is being operated on tonnage furnished on an allocation basis from the Minnesota and Ontario Paper Co., also in receivership, under an agreement made between the receivers of the two companies. This allocation, subjected to certain provisions, remains in effect until July 18, 1932, and it is anticipated that the

amount of tonnage furnished during the period of the allocation will be between 30,000 and 40,000 tons. Settlement of claim against Minnesota and Ontario Paper has not yet been determined, but it is expected that negotiations for this purpose will be entered into between the receivers of the two companies.

◆ Abitibi Reopens Fort William Mill

In pursuance of the company's policy of turning its huge inventories of pulpwood at its various mills into cash and to conduct no woods operations until business revives or additional wood is needed to fill contracts, Abitibi Power and Paper reopened its Fort William Division on January 11 and started up two of its paper machines. On the 18th the third machine was brought into operation.

The company has plenty of wood to carry it into next season at its various mills. At the end of 1930 its inventories were shown in the current assets at more than $15,000,000, and on the other side of its balance the chief current liability was bank loans of $4,500,000. The bank loans have been reduced considerably as a result of following the present policy. The huge inventories were piled up when sales of newsprint were being made in much larger volume than today. The company has its higher cost mills closed down, but it is understood that there is a considerable wood supply at these and that this resource is available for the company if a sudden stiffening of demand later in 1932 should make woods operations advisable at the earliest possible moment.

◆ THE BEAVER Wood Fibre Co. is rebuilding No. 2 board machine at its mill at Thorold to take care of the manufacturing of high grade special board. The alterations being made to the machine include the overhauling and rebuilding of the screen, the sizing rolls and the calender stacks. Five Dilts new type beaters have been installed.

◆ THE ONTARIO Forestry Service is contemplating the placing of floats on the planes in service at the headquarters at Sault Ste. Marie, instead of skis, owing to the absence of snow and the fact that the lack of it will create an acute fire hazard in the early months of the year.

◆ GOOD progress is being made with the power development at Abitibi Canyon by the Dominion Construction Co for Ontario Power Service Corp., a subsidiary of Abitibi Power and Paper Co Concrete has been poured for the main dam and work generally has been favored by the mild weather which has prevailed so far this winter. It is estimated that the generating station will be delivering power by next October, the first installment being 85,000 hp.

◆ L. A. BLENKARN has been appointed manager of J. H. McNairn, Ltd., of Toronto, manufacturers of waxed papers and other paper products, in succession to J. W. A. Miller, who died recently. The McNairn business is an old-established one, with a high reputation for quality product, and it is satisfactory to know that the same efficient staff as formerly is being maintained under Mr. Blenkarn's management.

◆ AT THE ANNUAL meeting of shareholders of the Hinde and Dauch Paper Co. of Canada, held in Toronto on January 29, President Sidney Frohman informed the shareholders that, although a greater tonnage of goods was disposed of during the past year, depreciated prices resulted in lower cash return. During the year reserves for depreciation were increased, inventories decreased, and, although working capital is lower than one year earlier, the current ratio is almost 2.5 to 1. Surplus earned is shown at $945,357, contrasted with $1,252,462 in the previous year.

◆ THE MILL belonging to Miller Bros. Co., Ltd., at Glen Miller, is operating at full capacity. It is working twenty-four hours a day and will continue this scale of operation until June. In July it will again be operating continuously on the same high level, it is anticipated. The mill produces strawboard, woodpulp, board and egg-case fillers.

NEW BRUNSWICK

◆ Fraser Companies Meet Bond Interest

Interest due on the first mortgage bonds of the Fraser Companies was paid on January 1, and the Restigouche Co., wholly-owned subsidiary, is meeting its bond interest on February 1. Conditions surrounding the Fraser Companies have been far from favorable, and it will be recalled that the position of the company was such that steps were taken during 1930 to bring about an improvement and to that end a group representing the banking interests have since taken an active part in the affairs of the company.

The interest on the 15-year debentures was passed April 1 of last year, but payments on the other issues have been met. At the end of last year the company found itself with bank loans of over $5,000,000, a short-term debt of $7,500,000 and an operating deficit of over $4,200,000 on the year's business, of which roughly $2,000,000 represented inventory loss.

◆ WILLARD G. CLARK, who died recently at his home in Bear River, N. S., was a member of the firm of Clark Bros., Ltd., which erected and operated a pulp mill at Bear River in 1919. Principals in the firm were the three Clark brothers, W. W., W. G. and C. C., with W. W. Clark as president and W. G. Clark as treasurer. The manufacture of sulphate pulp was to be followed by the introduction of boxes and cartons, not only at Bear River, but at Coldbrook, three miles east of St. John, where a branch plant solely for the manufacture of the paper boxes and cartons, also corrugated paper, was established. After the failure, there was a reorganization under the name of the Bear River Pulp Co. Mr. Clark is survived by three sisters and two brothers.

◆ A STRONG delegation from the New Brunswick Pulpwood Producers' Association had a private conference on January 29 with Sir Henry Thornton and E. W. Beatty, heads of the Canadian National and Canadian Pacific railways, to urge a general 25 per cent reduction on railway freight rates on pulpwood between Canadian and United States points. It was stated by E. C. Atkinson, head of the delegation, that there was no prospect of the New Brunswick pulpwood operators disposing of their product in the state of Maine this year unless the requested reduction in freight rates was made. After the conference Mr. Atkinson refused to make any statement as to the issue or progress of the negotiations.

MANITOBA

◆ PROTESTS against the prospective closing down of the Pine Falls mill of the Manitoba Paper Co., an Abitibi subsidiary, about April 1st, are being launched by the Government of Manitoba, the city of Winnipeg and the Winnipeg Board of Trade. Premier Bracken is making every possible effort to persuade the parent company to keep the mill running and recently went to Toronto and Montreal to interview officials of the company. The outcome of the negotiations have not been made public; but it is understood that the company has been told by the banks that it must use up the huge supplies of pulpwood accumulated at its various mills before financial assistance can be forthcoming.

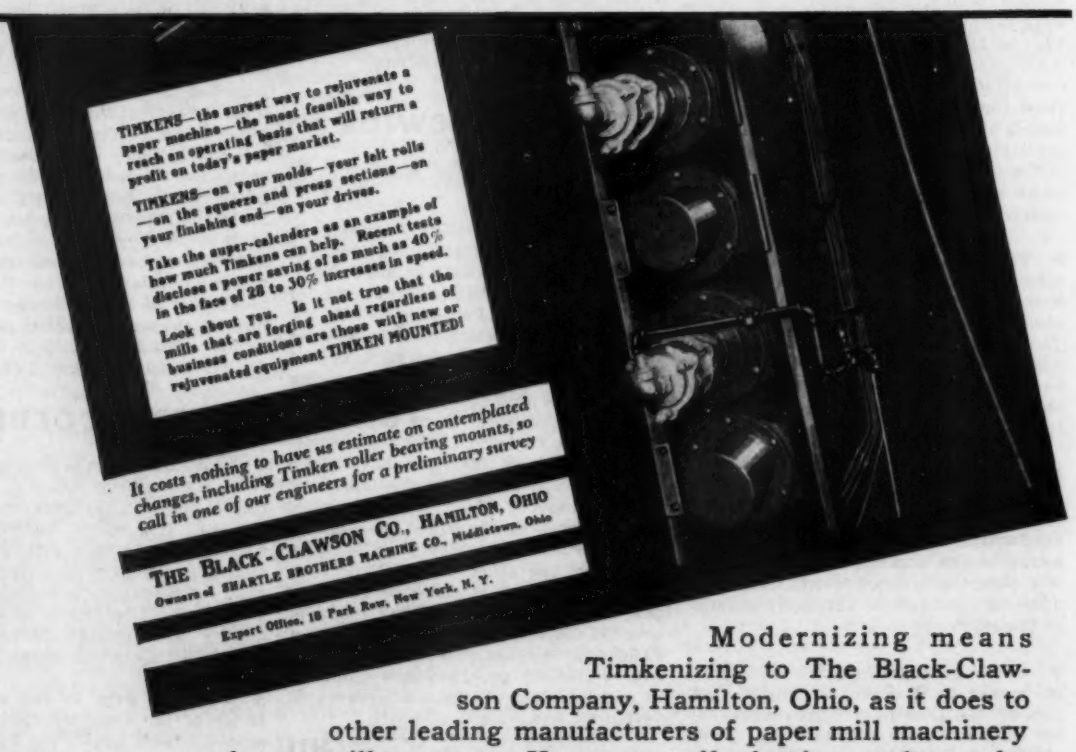
BRITISH COLUMBIA

◆ SCANDINAVIAN newsprint has become a disturbing factor on the Pacific Coast, where it has been offering at $41 per ton. It is stated, however, that not enough has yet been delivered to affect contracts held by Canadian mills, and that Scandinavian producers have not yet been able to deliver newsprint of a quality high enough to compete seriously with Canadian paper.

◆ FOREST fires in the southern interior of the Province during the past season totaled 1,017. The figure exceeds the total for 1930, which was 903, but is considerably below the 1929 record, which was 1,203. During 1931 there were many large and destructive fires, the largest being the Phillips Canyon fire in East Kootenay, which burned over an area of 126,400 acres. The next largest in the southern interior was also in the East Kootenay district, the Wardner fire, which burned over an area of 87,000 acres.

Reproduction of Black-Clawson advertisement from the paper trade publications.

Ask Black-Clawson-they know


TIMKENS—the surest way to rejuvenate a paper machine—the most feasible way to reach an operating basis that will return a profit on today's paper market.
TIMKENS—on your molds—your felt rolls—on the squeeze and press sections—on your finishing end—on your drives.
Take the super-calenders as an example of how much Timkens can help. Recent tests disclose a power saving of as much as 40% in the face of 20 to 30% increases in speed.
Look about you. Is it not true that the mills that are forging ahead regardless of business conditions are those with new or rejuvenated equipment TIMKEN MOUNTED!
It costs nothing to have us estimate on contemplated changes, including Timken roller bearing mounts, so call in one of our engineers for a preliminary survey
THE BLACK-CLAWSON CO., HAMILTON, OHIO
Owners of SHARTLE BROTHERS MACHINE CO., Middletown, Ohio
Expert Offices, 18 Park Row, New York, N. Y.

Modernizing means Timkenizing to The Black-Clawson Company, Hamilton, Ohio, as it does to other leading manufacturers of paper mill machinery and many mill operators. You cannot afford to ignore the results that are being secured with Timken Tapered Roller Bearings in all types of equipment. Consult the builder of your machines or write us direct. The Timken Roller Bearing Co., Canton, Ohio.

TIMKEN *Tapered Roller* **BEARINGS**

NEW ENGLAND

◆ **Merchants Restrict Credit**

Tightening of credits by Boston paper merchants holds more than passing interest to paper manufacturers. A leading Hub middle house has decided to meet the situation by a strong and definite stand in which it acted alone. Storrs & Bement Co., the merchant in question, has revised its sales terms to provide that accounts must be paid in full not later than the 15th of the third month following purchase. Failing such settlement, goods will be shipped only on a C. O. D. basis. Furthermore, accounts extending beyond the last day of the third month following purchase will immediately be turned over for collection. The company further reserves the right to accept or refuse interest bearing notes in lieu of cash, but always with the provision that no notes will become payable beyond the 15th day of the third month following purchase. Cash discounts of 2 per cent will be allowed in 30 days, net 31 or before the 15th of the month following purchase.

Manufacturers are pleased at this tightening of the credit reins in the New England district. Other merchants in the Boston district may follow with somewhat similar plans. Certain ones have decided to turn over for collection nearly all accounts unpaid at the end of the month following purchase. Boston merchants operate a credit exchange through a local organization outside the trade by which information on unpaid accounts is obtained.

◆ THE S. D. WARREN COMPANY continues its new policy of endeavoring to combine in one class of paper the characteristics and qualities of several. Last year they believe they accomplished this with their new coateds which they claim provide first grade folding characteristics in all regular high grade coated papers.

◆ THE BEVERIDGE Marvellum Company has been incorporated with $100,000 capital under Massachusetts laws, subsidiary jointly of the Marvellum Company, Holyoke, manufacturer of decorative papers, and the Beveridge Paper Co., of Indianapolis. The new company, it is understood, will make decorative papers, envelope lining stocks, and cover papers. F. C. Heywood, of Marvellum, is treasurer of the new company; W. J. Warner, president. It is understood that manufacturing space will be taken in the building formerly occupied by Whitmore Manufacturing Co., also used by Marvellum Co.

◆ NEW ENGLAND Paper Merchants Association elected W. H. Rourke, of Rourke Eno Paper Co., Hartford, president at its annual meeting January 20th, at the Harvard Club, Boston, succeeding Floyd Blackman, of D. F. Munroe Co., Boston. W. H. Loud, Simpson Co., and E. D. Bement, Carter Rice, are vice presidents; John Brewer, Storrs & Bement, secretary, and George D. Allen, Knight, Allen & Clark, treasurer. W. E. Porter, W. N. Stetson, E. G. Sullivan and H. B. North are directors, Charles A. Esty and M. O. Byrne representatives to the National Paper Trade Association.

◆ AMONG the substantial donors to the Boston Unemployment Relief Fund are Hollingsworth & Whitney Co., Rogers Fibre Co., Storrs & Bement Co. W. N. Stetson, of Storrs & Bement Co., is chairman of the Paper Committee engaged in raising money for the fund.

◆ CHARLES K. CRANE, fifty years of age, and connected with Crane paper interests at Dalton, Mass., until 1912 when ill health forced him to go abroad, died recently at Pasadena, Calif. He was active in international work connected with the suppression of trade in narcotics and was the author of the Crane plan considered at international conferences on that subject. He was a nephew of the late U. S. Senator Crane. He is survived by his mother, his brother and a sister.

◆ THE LARGEST GATHERING in the series attended the ninth annual review and analysis of the Tileston & Hollingsworth Co. calendar, held at the Boston Chamber of Commerce. The audience included the Boston Typothetae, Club of Printing House Craftsmen, Advertising Club, students and some

Is opacity one of your problems? Investigate the properties of

TITANOX-B
(Barium Base)

Due to its high opacity, remarkable whiteness, exceptionally fine particle size, chemical inertness and high bulking value, Titanox-B (Barium Base) is helping leading paper manufacturers improve the quality of "super" and coated paper stocks.

Titanox-B is a true, composite, opaque pigment . . . a white, fine, uniform powder consisting of Titanium Oxide precipitated upon and coalesced with barium sulphate (blanc fixe).

In some cases the use of Pure Titanium Oxide (TiO_2) — another of our products —in combination with china clay is desirable.

Investigation may prove that Titanox pigments can be used to improve the quality of your products. Write our nearest branch for information.

TITANIUM PIGMENT CO., Inc.

Manufacturers of
TITANOX-B (Barium Base) TITANOX-C (Calcium Base)
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Sources of Waste That Still Exist

Mills are preparing to be on a better footing for the inevitable return to normal market conditions. Efficiency and economy will characterize operations during 1932.

In spite of their aggressive plans to insure lower production costs through modernization of machines, many mills will continue to be heavily handicapped by burdensome operating cost due to neglected sources of waste.

In the machine room—wasted heat units carried out in vapor—heat units that should be reclaimed and utilized to economize on steam.

On the machines—waste and spoilage resulting from damage to felts, retarded drying, low capacity and high steam pressure, cockling and wet streaks; all of which can be avoided by proper absorption of vapor.

In the grinder room—waste of time and money for repairs to damaged machinery and slowing up of working schedules—all due to thick steaming fog that should be cleared from the room.

These and similar atmospheric difficulties are at the root of major operating problems throughout your processing. There is ROSS equipment especially designed to completely correct such conditions. Look to your heating and ventilating as the foundation for lower production costs. Our engineering staff is ready to assist you.

J. O. ROSS ENGINEERING CORPORATION

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NEW YORK

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ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

paper men. L. B. Siegfried, editor of American Printer, acted as critic. Similar analyses were given in Providence and other New England cities with two scheduled for later dates in New York.

◆ Thomas T. Rogan

Thomas T. Rogan, general superintendent and vice president of the Fitchburg Paper Co., passed away in Boston on January 28th, bringing to a premature close the career of a highly capable executive.

He was born in Mechanicville, N. Y., obtained his early training at the old Hudson River Power & Paper Co., later worked at Oxford Paper Co., and for over fifteen years with Fitchburg Paper Co. He had been Chairman of the Connecticut Valley division American Pulp & Paper Mill Superintendents Association, and was an acknowledged expert on problems concerning book paper production.

◆ GREAT NORTHERN Paper Co. stock is selling for less than its net quick assets, according to a financial survey of Maine industries. A buyer at present levels gets its share of Great Northern's ownership in 5 per cent of the surface of Maine.

◆ Freight Rate Changes

Recent freight rate changes docketed by the New England Freight Association include the following: Wrapping paper in carloads from Pepperell, Mass., to Madawaska, Maine, present 43c, proposed 32c. Printing or wrapping paper from Madawaska, Maine, to Brunswick, Maine, present 21.50c, proposed 15c. Newsprint from Millinocket, East Millinocket and Searsport to Camden, N. J., present 38c, proposed 34.50c, or same basis as Philadelphia. Paperwinding cores from all New Haven R. R. stations to all B. A. R. R. stations, present fourth class, proposed fifth class. Pulp in rolls or bales from La Tuque, Quebec, to points taking Boston rate basis reduced to rates from Desbiens, Chicoutimi and Grand Mere.

The Eastern Steamship Company is at present quoting a differential of 2c per cwt. on paper from Portland to New York City. The previous rate was 1c under all rail. This company is also absorbing switching with its own trucks on all commodities destined to New York and originating in the Boston switching district. They have refused to drop the Portland-New York rate to 15c, as requested by one large paper mill. Intercoastal lines still quote 45c per cwt. on paper, Boston to Pacific Coast ports. It is understood that one line recently quoted an even lower rate on a consignment from Boston to the Philippine Islands.

◆ NEW COMPANIES recently incorporated, include Fox Paper Co., Inc., Haverhill, Mass., to deal in paper, bags, twine, etc.; Haigh Paper Box Corp., reorganization of Haigh and Haigh, capital $10,000, plant in South Boston; Friend Box Co., Danvers, Mass., to manufacture paper boxes, capital $100,000.

OHIO

◆ Superintendents Hear Story of Nitrocellulose

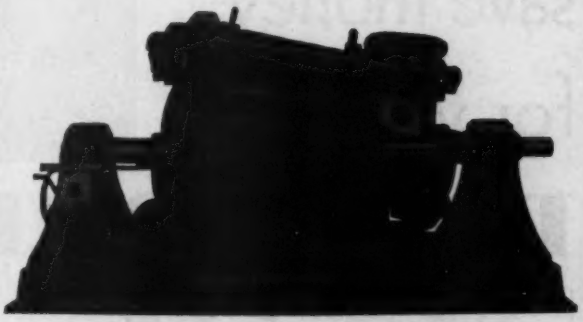
The Miami Valley Division of the American Pulp and Paper Mill Superintendents Association held its first meeting of the new year at the Hotel Manchester, Middletown, Ohio, January 9. The attendance numbered about fifty, there being at least one representative from every papermaking city in the valley.

As an opening feature of the program, Allan Hyer, of The Black Clawson Company, Hamilton, Ohio, gave a brief resumé of his nationally known talk "Safety on the Paper Machine." Although Mr. Hyer admitted that safety from the viewpoint of the paper machine manufacturer is not exactly the same as that of the papermaker, yet it seemed necessary to have at least one speaker during the season on the subject of safety. Mr. Hyer spoke of the many improvements that have been made in paper machines to eliminate hazards.

Jones

A name that has won a world-wide reputation through 75 years devoted to paper-making progress

COMPARE THESE FEATURES BEFORE SPECIFYING ANY JORDAN!



Split Adjustable Shell Type JORDAN, showing top half of shell raised giving view of Bandless Plug.

Designed and constructed to allow ease in opening to examine or change filling. Bearings need only be loosened and plug lifted vertically out of lower half of shell. Plug is non-adjustable, running on Timken bearings, thus eliminating all vibration. Plug and shell are always in perfect alignment, giving maximum life to fillings, and utmost efficiency to internal Jordan operation. The movable shell slides in the base which allows a precision adjustment between plug and shell, to thousandths of an inch. Furnished and tackled in all sizes and types.

Bulletin Mailed on Request

PAPER-MAKING MACHINERY E D JONES & SONS COMMPANY ESTABLISHED 1846 PITTSFIELD, MASS.

E. D. JONES & SONS COMPANY
PITTSFIELD-MASSACHUSETTS
BUILDERS OF HIGH GRADE MACHINERY FOR PAPER MILLS

Let this belt save money for you ▲▲▲

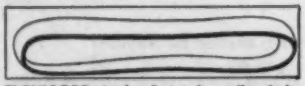
FLEXICORD ALL CORD ENDLESS BELT

Note the Construction

Long, straight, sturdy auto tire cords are the basis of FLEXICORD All Cord Belt. These cords provide flexibility, prevent stretching, and thereby assure longer, more economical belt service.

These load-carrying cords are then encased in a cord envelope, with cords running crosswise, greatly increasing the life of the belt.

The final cover of FLEXICORD is a tough, rubber composition that has proven a "world beater" for resisting wear.



FLEXICORD is the first truly endless belt. Having no joint or splice, the thickness is perfectly uniform all around.

On those difficult short center drives, where the belt is subjected to severe loads, sudden starts and stops—there's where FLEXICORD demonstrates its superiority. The all-cord, endless construction (described at the left) saves you many dollars through increased transmission efficiency, and prolonged service; the rubber cover assures perfect, slip-tight pulley hug.

The illustration above shows a 24-inch wide, 6-ply FLEXICORD All Cord Belt transmitting 125 H. P. to a beater in a large Southern paper mill. When this belt was installed in the place of a double-ply leather belt, the idler pulley was removed. The plant superintendent reports FLEXICORD is doing an excellent job.

FLEXICORD Belts are not "stock" belts. Each is individually made to exact size—and built endless, without a joint or splice.

Let us send you a sample of FLEXICORD, also complete details.

The Cincinnati Rubber Manufacturing Co.

CINCINNATI OHIO

Many of the modern developments have safety as a leading factor.

Following Mr. Hyer's talk, an interesting address was given by J. K. Speicher, of the Hercules Powder Company, Wilmington, Del.

Mr. Speicher showed three reels of film, "The Story of Nitrocellulose," depicting the sources, manufacture, and uses of nitrocellulose, the versatile product used in manufacturing modern lacquers, coated textiles, celluloid, collodion, and pyroxylin materials.

Mr. Speicher explained that nitrocellulose is a chemical compound which is a true ester; it is a purely chemical process. Of the various sources of cellulose for nitration, cotton linters are the choice of the manufacturers. Other sources are waste wood from forests, all forms of fibers, stalks and plant structures.

The purification of linters consists essentially in the saponification of the saponifiable material in the linters. This is done by the use of caustics and pressure digesters, followed by a thorough washing out of foreign products, leaving a pure cellulose.

The manufacture of nitrocellulose requires three major steps—nitration, purification, and dehydration. At the Hercules plant, the purified cellulose linters are first fluffed in an automatic picker. They are then dried to a moisture content of 0.5 per cent in an ordinary steam-heated tunnel dryer, and sent to the nitrating house. The nitrators are vertical tanks equipped with two sets of paddles into which 1,600 pounds of acid, composed of a mixture of nitric acid, sulphuric acid, and water, are run. The composition of this acid has to be closely regulated as it is this mixture that controls the properties of the nitrocellulose.

The dried, fluffed cellulose linters are forked into the nitrator and agitated in the mixed acid for a definite time at a closely controlled temperature. During this process the cellulose is changed into nitrocellulose. After nitration, the charge is dropped into centrifugals which throw the spent acid out of the nitrocellulose by centrifugal force through the perforations in the basket. The acid-wet nitrocellulose is quickly forked from the sides of the basket and dropped into water in the so-called immersion bowls. The nitrocellulose is then floated along in a water stream to the purification area.

The first step in purification is washing the acids out of the nitrocellulose. This is done in mechanically agitated chrome-iron lined wooden tubs. The nitrocellulose is then pumped by centrifugal pumps using water as the carrying medium, to chrome-iron lined wooden boiling tubs where it is heated in boiling water by injecting live steam into the water. This operation breaks down the unstable cellulose compounds formed in the nitration into such shape that they can be washed out. The water-borne nitrocellulose is then pumped to pressure digesters where the heating process is continued under pressure to subject it to higher temperatures so as to accelerate the purification process. This pressure digestion also lowers the viscosity of the nitrocellulose to the desired degree.

After digestion the nitrocellulose is pumped to the treating tubs where it is subjected to a continual washing process to wash out impurities. Following purification the material is pumped to bins in the dehydrating area. After the excess water has drained off in the bins the water-wet nitrocellulose is placed in the dehydrating press where it is subjected to pressure to squeeze as much water out as possible. The mass in the press is then dehydrated by pumping denatured alcohol through it to wash out the water, after which a higher pressure is used to squeeze out the excess alcohol. Ethyl alcohol, butyl alcohol or isopropyl alcohol can be used, depending upon the wishes of the nitrocellulose consumer.

After dehydration, the material is sent to block breakers where the mass of alcohol-wet nitrocellulose is torn apart into a fluffy condition to make it easier to handle and use, and then packed in open-head steel barrels. After analysis of the material for alcohol content, a definite quantity of the wet material is placed in each barrel to give a definite weight of nitrocellulose material in the barrel, after which enough alcohol is added to give a definite weight of alcohol in the barrel, which is then closed and labeled for shipment.

Following his address, Mr. Speicher showed some moving

RYERSON

IMMEDIATE STEEL FOR MAINTENANCE AND REPAIR

When something breaks . . . and steel is needed in a hurry . . . you can depend upon Ryerson for quick action. Complete stocks of all steel products, including:

Bars	Wire	Babbitt Metal
Shapes	Chain	Tool Steel
Structurals	Turnbuckles	Bar Iron
Rails	Shafting	Refined Iron
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Sheets	Boiler Fittings	Safety Treads
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Bolts	Concrete Reinforcing	Machinery
Nails	Welding Rods	

Write for the Journal and Stock List — the "key" to Immediate Steel.

JOSEPH T. RYERSON & SON INC.

Chicago Milwaukee St. Louis Cincinnati Detroit
Cleveland Buffalo Jersey City Philadelphia Boston

STEEL

Novel Pulp Washer Improves Paper

New Machine Changes the pH from Caustic to Acid.

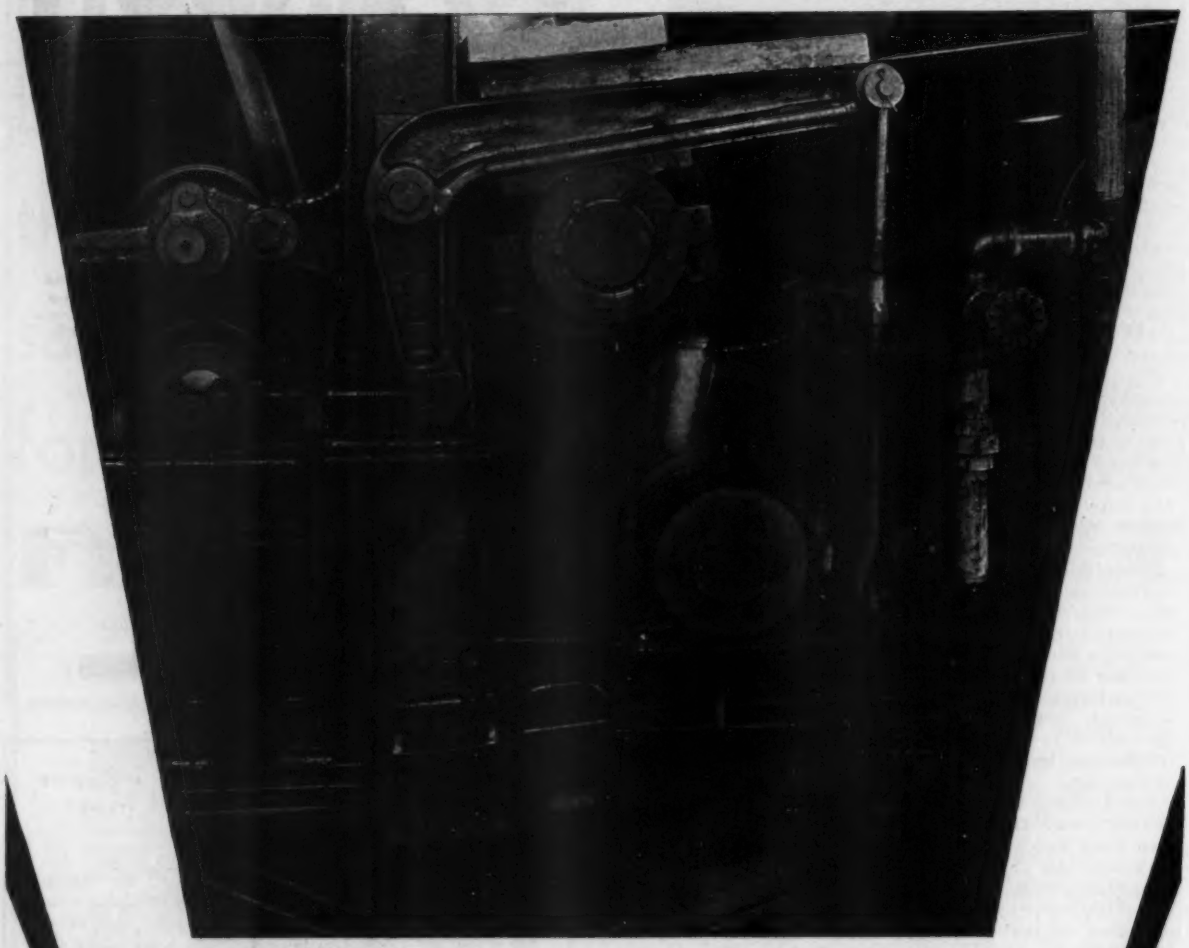
In order to make good paper from Soda Pulp or Sulphate Pulp, it is essential to eliminate all the caustic liquor, and put in alum which is acid to precipitate the size onto the fibres. APMEW Pulp Washer Thickener has a patented, new and unique means for washing the caustic liquor from the pulp and discharging the pulp with an acid pH. In other words, it is possible for it to be more than 100% efficient. This is economically accomplished in APMEW Washer by draining from pulp, most of the remaining traces of liquor; then in the novel washing device, white water from paper mill containing alum acid is used; and this alum acid water forces its way into the thin pulp sheet on cylinder, and forces the remaining traces of caustic liquor out of the pulp, and discharges it with an acid pH. Considerable white water is usually continuously thrown away by the paper mill, and using it in this manner makes an exceptionally valuable recovery of the alum, as well as of the fibre, size or clay. Consequently according to the amount of alum acid in the white water, the efficiency of APMEW Washer can be more than 100%, and is exceptionally valuable.

This novel machine is not only an excellent Pulp Washer, but it is an excellent Saveall as it saves fibre, clay, size; and uses the Alum Acid to valuable advantage.

Several SULPHATE MILLS use this Novel Pulp Washer and state that it is the best Pulp Washer in their experience. They find that it washes and thickens 75 tons to 100 tons daily, discharging pulp with acid pH at 5½% and higher density; it uses 1½ horse power; the effluent is free from fibre; and it is trouble-free. They also find it is an economical machine to purchase.

This Novel Pulp Washer is manufactured in Canada for American Paper Machinery and Engineering Works, Glens Falls, N. Y. Complete information will be furnished upon request.

DOWNINGTOWN



EXTRACTOR ROLL

(PATENTS PENDING)

INCREASES SPEED & WIDENS TRIM

The speed of a machine making 38 point folding box board was increased 15% after the installation of a Downingtown Extractor Roll. Aside from increasing speed, in many installations the Extractor Roll has widened the trim. Either of these production increases would alone warrant the investment. The Extractor Roll removes as much as 2 to 3 lbs. of water per lb. of finished board and produces a firmer sheet with a better finish. It does not require any power and is easily installed at the end of the vat section, without rearranging other equipment. We will gladly send you actual performance facts on what various mills have saved in felts, power, steam and furnish, by installing an Extractor Roll.

The Downingtown Manufacturing Co., Downingtown, Pa.

picture illustrations and answered questions asked by his audience.

◆ Improvements at the Beckett Paper Co.

The Beckett Paper Company, Hamilton, Ohio, intend to spend $100,000 for the enlargement and improvement of manufacturing equipment. Steps leading to this were taken at the annual meeting of the Board of Directors on January 20. At an annual meeting of stockholders, which preceded the director's meeting, the following Board of Directors was chosen:

Mary M. Beckett, Guy H. Beckett, Don W. Fitton, Frank J. Becker, Brandon R. Millikin, H. H. Latimer, C. R. Greer and Rose Brede. Officers of the board were re-elected as follows: President, M. M. Beckett; vice president, Guy H. Beckett; secretary-treasurer, F. J. Becker.

The Beckett Paper Company, which is now completing its eighty-fourth year of successful operation, is looking forward to a speedy return of prosperity and in anticipation will begin at once with the rebuilding of their paper machines into larger, faster and thoroughly modern paper manufacturing equipment. The cover paper machine will be widened from 66 inches to 81 inches and its speed will be accelerated, additional rolls and dryers being added. Surface sizing equipment, a suction roll and driving appliances of the most approved design will be installed. Machine No. 2, which is used largely in making the company's text, offset, envelope, papeterie bond and writing paper lines, will be enlarged to increase both its production and speed of operation. Practically all of the work will be done by The Black-Clawson Company, of Hamilton, and its subsidiary, the Shartle Company, of Middletown.

MICHIGAN

◆ Wallace Addresses Superintendents

The Michigan Division of the American Pulp and Paper Mill Superintendents Association had for the speaker at its regular January meeting, Joseph H. Wallace, a former papermaker, who is at present affiliated with The Black-Clawson Company, Hamilton, Ohio.

Mr. Wallace's talk was illustrated with stereopticon slides. One of the important subjects touched upon was the solvent sizing process as introduced by and used with the Minton Vacuum Dryer.

◆ Kalamazoo Division of Tappi Elects Officers

At the regular January meeting of the Kalamazoo Section of Tappi, the following officers were elected: Chairman, E. Frank Whittington, Sutherland Paper Company; vice chairman, Harry C. Bradford, Rex Paper Co.; secretary-treasurer, Carl C. Schneider, Hawthorne Paper Co.

Following the business session, the chairman called upon John E. Schopp, to speak on his experience with starch as a coating material. Mr. Schopp set up the advantages of starch over casein as a coating material, his conclusions being given from his own experiences.

Progress was reported in the matter of pulp testing by Carl C. Schneider, head of the Fibrous Materials Committee. The committee is having samples prepared for distribution to the co-operating laboratories, and the method of procedure for the present is to be left to the individual, with the exception of basis weight of hand sheets. The committee hopes to be able to set up standards of quality for pulp which can be used as a guide in purchasing.

◆ Cost and Technical Association

The Kalamazoo Valley Cost and Technical Association elected officers at its January meeting. As a result of this election, Frank Libby, Kalamazoo Vegetable Parchment Co., was advanced from vice president to president of the Association. Carl Dewey, Lee Paper Co., was elected vice presi-

ORR

Definite Advantages

You will find the Orr a better water extractor — reducing the work for the dryers to a minimum.

You will find that Orrs last longer—reducing the annual felt bill by many hundreds of dollars.

The above statements may very easily be proved in mills sufficiently interested to conduct operating tests — first on one make, then on another.

Put on a test in your own mill. We have every reason to feel that the Orr will prove its superiority, as it has done elsewhere.

Complete line in all required sizes and weaves, including endless felts up to 86 feet in length.

The Orr Felt & Blanket Co.
Piqua, Ohio

FELTS

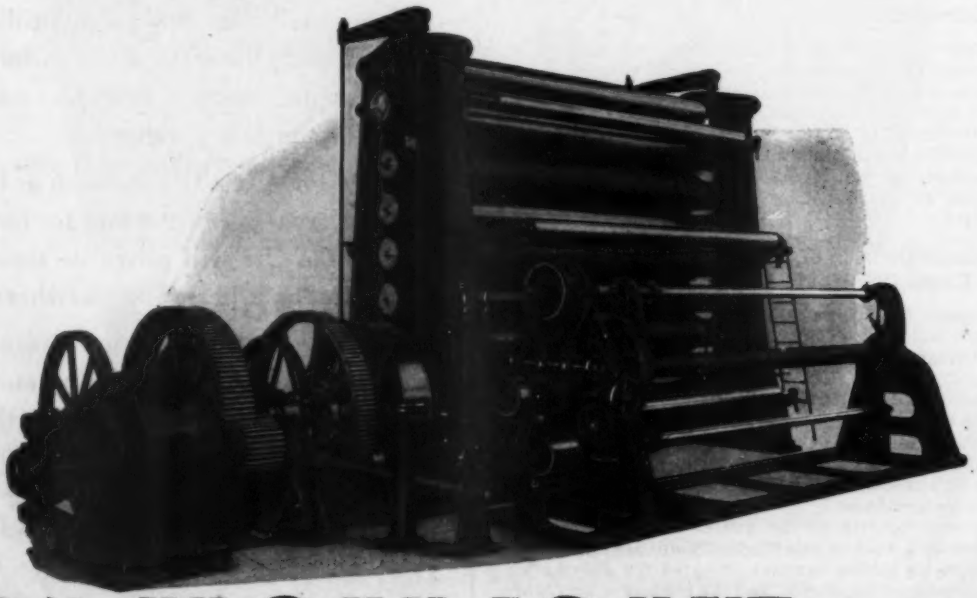
HOLYOKE

SUPER CALENDERS

and Experience

Experience does not come over night,—not in the designing and building of Super Calenders. It is the result of long years of intimate study of the daily dozens of difficulties to be overcome in the Paper Industry. For 65 years the HOLYOKE MACHINE COMPANY has built Quality and Superior Performance into every HOLYOKE MACHINE. When planning purchases of equipment consult with HOLYOKE Engineers, Holyoke Machine Co., Holyoke, Mass.

Manufacturers of Super Calenders, Platers, Cotton and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.



The HOLYOKE MACHINE COMPANY

FOUNDED 1863

dent, and Harry C. Bradford, Rex Paper Co., who has been secretary-treasurer of the association since its early days, was retained.

An interesting address was given by Mr. Loring on the subject of "Costs in Connection with the Changing Market." The second speaker of the evening was Carl E. Foff, of the International Printing Ink Co. Mr. Foff outlined the ingredients and characteristics of printing ink, and brought out some very interesting points in relation to the use of ink in various types of printing.

◆ Frederick M. Hodge

Frederick M. Hodge, who had been president of the Kalamazoo Paper Company, Kalamazoo, for about thirty-five years, passed away January 19, at his home in that city, just six days following his resignation as president of the company to retire from active business. Mr. Hodge was seventy-three years of age.

Although born in Brooklyn, N. Y., Mr. Hodge had spent practically all of his life in Kalamazoo, his father, the Rev. M. G. Hodge, having been called to the pastorate of the First Baptist Church there when Frederick was a small child. It was here he received his education, attending the public schools and later Kalamazoo College. For a time, after the completion of his schooling, he worked in one of the banks, and later entered the employ of the Kalamazoo Paper Company. At that time, Samuel A. Gibson was president of the company, and it was his interest and kind direction that started Mr. Hodge on his career as a paper making executive. Upon the death of Mr. Gibson in 1899, Mr. Hodge was made president of the company.

To the paper industry at large, Mr. Hodge was known as an outstanding figure, a leader of one of the most successful paper mill organizations in the country. In his home city, he was interested and active in all civic and community movements, was heart and soul in all that made for the advancement of the city and its people. But perhaps, in his own organization, among his employees with whom and for whom he had worked for many years, he was best loved. Under his guidance the company has grown into industrial prominence, and he was also a director of both the Hawthorne Paper Company and Sutherland Paper Company.

Mrs. Hodge, who was Miss Edith Gibson, daughter of the former president of the Kalamazoo Paper Company, survives him. There are also two sons and two daughters surviving.

◆ AT THE ANNUAL meeting of the Allied Paper Mills, Kalamazoo, all officers were re-elected. The board of directors was also retained with the exception of George S. Davis, who has withdrawn. Dwight R. Curtenius, comptroller, was elected to fill that vacancy on the board. The Allied mills shows a very good financial condition, although it has passed its dividends during the past year.

◆ WATERVLIET Paper Co., Watervliet, re-elected the entire personnel of officers and directors at its annual meeting. It was brought out at the meeting that in addition to paying the usual six per cent dividend during the past year, the company paid an extra dividend at Christmas time. All machinery and equipment have been kept up to date and new equipment added during the year.

◆ JOHN WEIMER, superintendent of the Lee Paper Co., Vicksburg, and well known by papermakers in the surrounding country, passed away January 22. He had been an employee of the company for twenty-five years. Mr. Weimer leaves a widow and six children.

◆ W. B. Milham Named President of Bryant

W. B. Milham, vice president of Bryant Paper Company, Kalamazoo, was elected president of the company at a meeting of the board of directors January 15. Mr. Milham has been acting as president since the resignation a short while ago of Felix Pagenstecher.

W. T. Schmitt, who has been acting in an advisory capacity with the Bryant Company for some months, was elected to the board of directors, also made vice president and general

AMIJEL

AMIJEL is not an ordinary beater starch—it is a specially processed, pure gelatinized starch—ready for use. Does not have to be cooked. Just add in dry form to the beater.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City

THE RIGHT ANGLE
•to lower costs•

IS to maintain quality standards. "S" Brand Silicate of Soda has helped many mills accomplish this. Perhaps it will be of service to you.

Without obligation, send for a copy of "Evidence on Paper," a resume' of various mills' experience with the use of silicate of soda.

PHILADELPHIA QUARTZ CO.
General Offices and Laboratory
121 S. THIRD STREET, PHILADELPHIA
Chicago Office: 205 West Wacker Drive

Many kinds of wool to make . . . .

Hamilton Felts

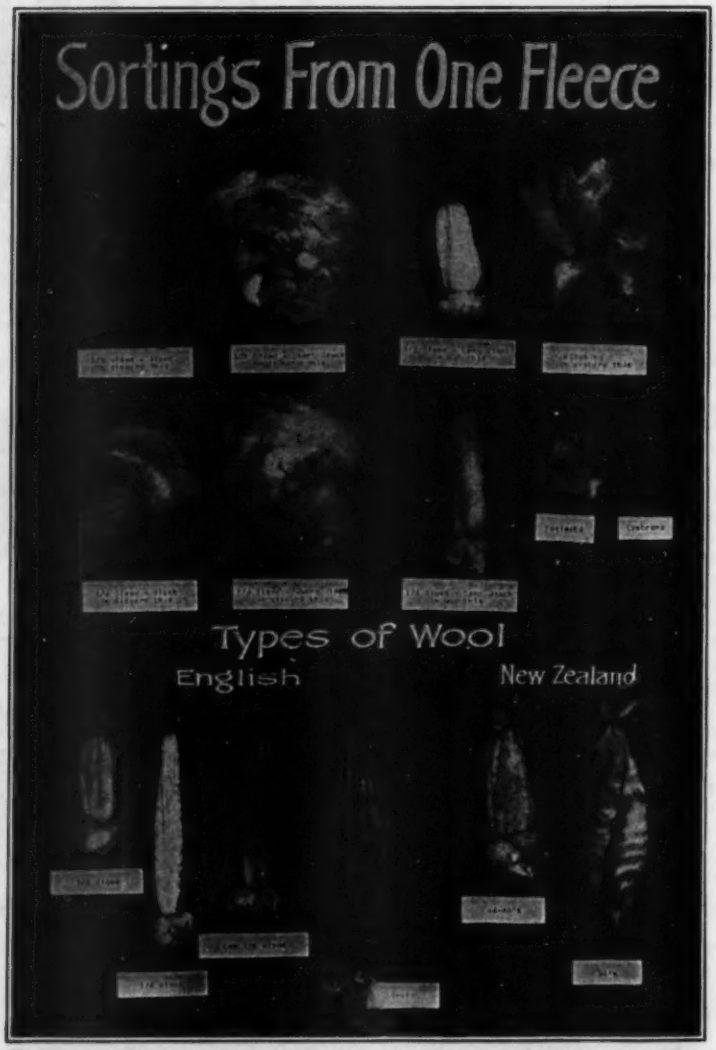
Here's what happens to a raw fleece when it comes to our sorting room—nine different gradings are made, and of these nine, we throw away seven as unfit for a Hamilton Felt.

That's only for one fleece. And we buy seven different kinds of fleece — fleece from different breeds of sheep from different parts of the world; Australia, England, Canada, South America, New Zealand, and our own United States.

With this careful grading and the subsequent washing in mind, is it any wonder that for every 2¾ pounds of wool we buy we have only one pound of finished felt to sell?

Naturally this increases the cost of a Hamilton Felt. But by the same token it assures that into a Hamilton Felt go only the very finest wools suitable for the paper-making process.

You'll see the difference between a Hamilton Felt and an ordinary one the first time you put a Hamilton Felt on your machines — you'll see it in the check sheets, in increased production, in less broke, in less down time. Over the year you'll see it in fewer felt purchases. Try a Hamilton Felt.

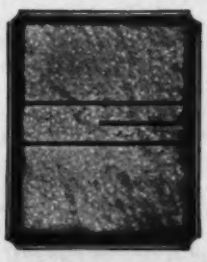


The upper half of the illustration shows the nine sortings which Shuler and Benninghofen make of every fleece. Seven of these are discarded. Only two of them are used. The lower half shows six of the types of wool used in Hamilton Felts, each one for a particular kind of felt.

SHULER & BENNINGHOFEN, Hamilton, Ohio

Miami Woolen Mills, Established 1858

Hamilton Felts



Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them.

manager of the company. Mr. Schmitt has had experience in paper mill management, having been with the American Writing Paper Company for some time in an executive capacity.

◆ A. E. CURTENIUS, who has been secretary-treasurer of the Kalamazoo Paper Co. for a number of years, was elected president at the meeting of the stockholders on January 13, to fill the vacancy caused by the resignation of Frederick M. Hodge. At this meeting, the resignation of Dwight R. Curtenius from the board of directors was accepted and the board voted to reduce the number of directors from eight to seven. Mr. Curtenius is a director of the Allied Paper Mills.

WISCONSIN

◆ Annual Meetings Reflect Confidence of Mills

While the year 1931 has presented its problems of fluctuating schedules of operation, difficulties of foreign competition and a struggle for sales volume, annual meetings held by some of the Wisconsin mills indicate an air of confidence that 1932 will bring a consistent run of orders so production will be close to normal.

All four mills of the Consolidated Water Power & Paper Co., at Wisconsin Rapids, Biron, Stevens Point and Appleton, will operate at 85 per cent of capacity, according to estimates of George W. Mead, president, in his annual report to stockholders. "The company realizes," he says, "that the fullest possible operation of all the plants will yield the best results. The company will pay its usual dividend of six per cent and its extra dividend of four per cent." All of the directors were re-elected.

The Nekoosa-Edwards Paper Co., Nekoosa, has preserved its volume fairly well against the serious competition in the kraft field. Although schedules have been curtailed, stockholders were informed at the annual meeting that all eight machines have now been placed on full time and will continue thus for some time to come because of orders now on the books. The board of directors was re-elected and L. M. Alexander continues as president. John E. Alexander was re-elected first vice president and general manager.

Plants of Appleton Wire Works and Wisconsin Wire Works, at Appleton, have resumed operations after a shutdown of about a month while wage negotiations were pending. Conferences between the managements and labor organizations resulted in a compromise agreement by which a cut of ten per cent in wages is effective for the first six months of 1932, and of 12½ per cent for the last six months. About 60 employees are affected.

Expansion of production has been enjoyed by the branch mill of the Marathon Paper Mills Co., Ashland, through the addition of four converting machines on tissue specialties. Twenty-five employees were added and the total working force is now 182. The Peavey Printing & Paper Co., of that city, has installed a new toweling machine and added ten employees. Additional employment was given at the Consolidated Water Power & Paper company's wood loading dock at Ashland by the operation of two hoists instead of one, transferring pulpwood from rafts to cars.

Because of research and new uses for cartons, the paper board industry looks for increased production in 1932, in the opinion of J. L. Barchard, president of Hummel & Downing Co., Milwaukee. The industry has operated at about 70 per cent of capacity. Low inventories will bring about increased buying, it is believed.

◆ Forestry in the State

Depreciation of Norwegian and Swedish currency since going off the gold standard, and the consequent reduction of 20 to 35 per cent in pulp prices sold for American money is a matter of concern to Wisconsin's $100,000,000 pulp industry. The state has 35 pulp mills using 348,000 cords of native hemlock and spruce and large amounts of imported wood, and an annual payroll of $2,000,000. With every possible

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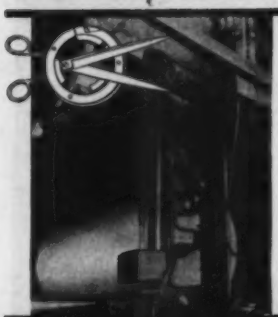

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economy effected, pulp cannot be delivered to the Atlantic seaboard for less than $35 a ton, against the Scandinavian price of $25 delivered at New York. In the opinion of E. W. Tinker, regional U. S. forestry director, the remedy lies in action by congress to adjust and equalize currency rates, or the enactment of a tariff on free pulp importation, a step taken in 1912 to preserve the American pulpwood supply.

This situation is stimulating the Wisconsin Conservation Commission to protect mills in the future by the planting of 10,000,000 trees annually on 10,000 acres of state lands. It is estimated that a net productive area of 1,580,000 acres in continuous wood production is required to supply pulp needs. The policy will be to grow pulpwood species in the vicinity nearest paper mills.

Approval has been given the Nekoosa-Edwards Paper Co. to reforest 15,000 additional acres in Wood county, greatly expanding its present tree planting program. These lands will be entered under the state forest crop law to exempt them from property taxation until the wood is cut.

Three additional forests in Ashland, Sawyer and Taylor and Oconto counties are contemplated by the U. S. forestry service bringing the total nearer the maximum program of 1,000,000 acres approved by the State of Wisconsin.

◆ FIGURES obtained from the biennial federal census of manufacturing show Wisconsin paper production has reached $100,000,000 annually, with 9,741 wage earners receiving $12,370,195 and 1,078 salaried officers receiving $3,387,312. Pulp and pulpwood products are valued at $36,058,146 annually, with approximately 3,500 on the payrolls receiving $4,980,992. Paper goods are valued at $8,188,460, and boxes and allied product $10,995,936.

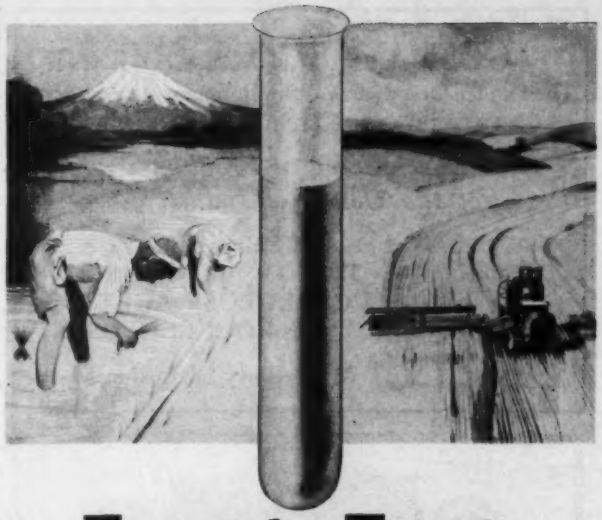
◆ NET SALES of the Masonite Corporation, Laurel, Miss., owned largely by Wisconsin paper mill capitalists, showed a gain from $2,496,000 in 1930 to $2,796,000 in 1931. Ben Alexander, Wausau, Wis., is president. Net earnings increased from $262,531 to $404,228, before deduction of interest charges on $950,000 of six per cent notes outstanding. Current assets are $1,328,000, liabilities $287,200, or a ratio of 4.6.

◆ UNEMPLOYMENT insurance will go into effect in all paper mills in Wisconsin under a new law enacted by the Wisconsin legislature, providing that 175,000 workers in industries of the state must be deriving benefits under the plan by July, 1933, otherwise a compulsory arrangement goes into effect. The latter would require paying a state insurance fund two per cent of annual pay roll for two years, and one per cent after that until the amount equals $75 per employee. The allotments to the fund then cease. Workers idle through no fault of their own will be entitled to a maximum of $10 a week for ten weeks unless the employee himself contributes additional money to the fund. The plan applies to all receiving less than $1,500 annually. Wisconsin is the first state to adopt the plan.

◆ INCORPORATION of the Menasha Mill Supply Co. at Menasha has been announced by Fred M. Rosenthal, manager. The company has purchased the Allen Waste Paper Co., Menasha, and Mr. Rosenthal will manage the combined interests. The concern is allied with the U. S. Paper Supply Co., Chicago, Kansas City Waste Paper Co., Kansas City, Mo., and the Des Moines Waste Paper Co., Des Moines, Iowa. Operations will be expanded and a larger force placed at work assorting and shipping waste paper to various mills.

◆ TEST WELLS are being drilled by the Dells Paper & Pulp Co., Eau Claire, Wis., in an effort to find a sufficient volume of water free from iron and manganese to supply the mill needs. Water now drawn from the river is not satisfactory and prevents uniform color.

◆ THE INSTITUTE of Paper Chemistry at Lawrence College, Appleton, has received a graduate research fellowship of $1,000 from E. I. DuPont de Nemours Co., and an electric high pressure boiler from General Electric Co. Manufacture of paper will now be possible on the test machines previously installed. The DuPont company has opened a branch



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but the Test Tube
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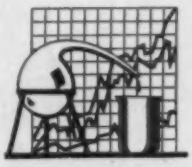

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research laboratory at the Institute, where Dr. Samuel Lehner will study the cooking of colored rags. A co-operative research arrangement also has been made by Rohm & Haas Co., Philadelphia, to develop artificial resins for the paper industry. Dr. I. C. Sommerville will be in charge.

◆ S. F. SHATTUCK, vice president of Kimberly-Clark Corporation, Neenah, has been elected president of the National Manufacturers bank, after serving as a director since 1903. A. C. Gilbert, president of Gilbert Paper Co., has been made vice president. F. J. Sensenbrenner, president of Kimberly-Clark Corporation, has been re-elected vice president of the First National bank, Appleton. C. A. Babcock, president of the Wisconsin River Paper & Pulp Co., has been elected vice president of the First National bank, Neenah. Judson G. Rosebush, president of the Patten Paper Co., Ltd., is a new director of the Farmers & Merchants bank, Kaukauna.

◆ SHADUR PAPER Box Co., St. Paul, Minn., has leased a plant at 1726 N. First Street, Milwaukee, and is moving its plant there. The company expects to start operations immediately with 30 to 50 workers. Harris Shadur is president of the company.

◆ WAGE reductions of ten per cent were placed in effect January 1st by Nekoosa-Edwards Paper Co., Nekoosa, the second reduction within six months. The company's scale compares favorably with other mills, according to a survey. Rates for electric current from the company's power plant and rent of company-owned houses of workmen have been reduced.

◆ SUMMONED by the New Zealand government, L. A. DeGuere, paper mill architect and engineer, has gone to the island to investigate possibility of establishing a paper mill there. The country has developed water power and 300,000 acres of land planted to trees of pulpwood species. There are no paper mills on the island now.

◆ WITH IMPROVEMENTS costing about $100,000 completed, the Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., is applying to the Wisconsin Public Service commission to raise the level of its dam on the Wisconsin river at Stevens Point, Wis., two feet. The company has compensated the city for land which will be inundated and offers to assume reasonable riparian liability. A hearing is to be held to legalize the improvement through which the company expects to gain greatly increased water power.

◆ A FRANCHISE granted the Wisconsin Valley Improvement Co., a holding corporation of paper mills, having water power along the Wisconsin river, has been withdrawn by repeal of a special law formerly passed by the Wisconsin legislature. It permitted construction of a large storage reservoir and future projects to assure a more uniform flow throughout the year. Farmers contended the franchise was so liberal it would permit flooding of 3,125 square miles. A new proposal more specific in its application is requested by the legislature.

◆ ANNOUNCEMENT is made of the death of George W. Heisler, general sales manager of the Sutherland Paper Co., Kalamazoo, Mich., at that city. Burial took place at Neenah, Wis. Mr. Heisler was well known in Wisconsin paper mill circles. He was employed by the former Menasha Printing & Carton Co., Menasha, Wis., for 15 years and was sales manager for 10 years. He was 45 years old.

◆ THE NORTHERN Paper Mills, Green Bay, Wis., declared its regular dividend of $1.50 on preferred stock for the last quarter of 1931. Earnings and sales have been highly satisfactory.

◆ THROUGH a resolution adopted by the Wisconsin legislature, newspapers and magazines published in the state are importuned to place in their mastheads information designating where the paper was made. The purpose is to discourage importation of paper from Canada and encourage use of Wisconsin-made products.

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TECHNICAL DEVELOPMENTS

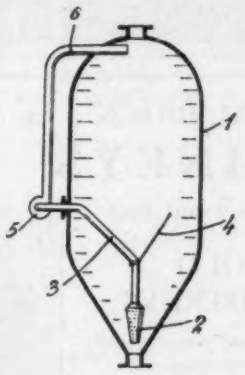
IN THE PAPER INDUSTRY ■ DOMESTIC AND FOREIGN

The following abstracts are of the latest developments found in the foreign press and in the patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

◆ Forced Circulation of Liquor in Digesters

The illustration shows an arrangement for the forced circulation of digestion liquor through a digester. A screen (2) is arranged in the lower part of the digester (1) so as to be freely movable. The screen is made in the form of a truncated cone and is located centrally. The narrow end of the screen is directed downwards. The screen is attached to the tube (3) and the whole arrangement is supported by means of the rod (4). The pipe (3) is carried through the wall of the digester and is connected with the pump (5). The latter is connected by the pipe (6) to the upper part of the digester. It is also possible to insert a heating device in the circuit.

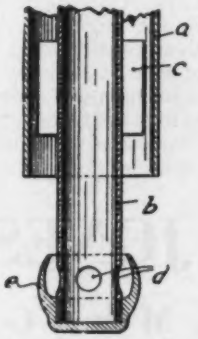
The arrangement is able to cause the circulation of the liquor throughout the



digester either in an upward or downward direction. No trouble is experienced with splinters and pieces of wood getting into the screen and the discharging or blowing out of the digester is accomplished without any difficulty. Einar Morterud, Torderoed, Norway. German Patent No. 517,951.

◆ Device for Filling Digesters

The purpose of this filling device is to insure a particularly favorable distribution of the wood chips. As may be seen from the accompanying illustration, the device consists of an exterior wide tube (a) and a narrower tube (b) which is set into the outer tube. The free end of the tube (b) extends below the end of the wide tube (a). The inner tube (b) is maintained centrally within the wider tube by means of the supports (c). The tube (b) is provided with an additional wider part at the bottom which carries perforations or rather openings (d). The cap (e) closes the lower end of the tube (b), in such a manner that an annular space is formed. The diameter of this annular space is less than that of the wide tube (a) and is connected with the inner tube through the openings (d). Both tubes are connected with a



steam line. The steam that is fed to both tubes, is regulated. The steam, therefore, flows partly through the space between the outer and inner tubes and partly through the annular shaped space between the tube (b) and the cap (e). The two currents of steam meet in such a manner that a cone-shaped mass of steam is formed by suitable regulation of the flow which distributes the downflowing mass of wood chips so that they are evenly scattered within the digester. Sjune Svensson, Hissmofors, Sweden. German Patent No. 532,016.

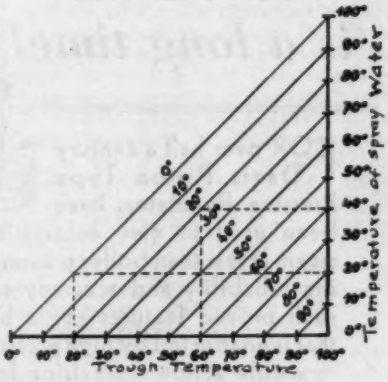
◆ Sulphite Digestion with Recirculated Liquor

Tests were made over a period of two years in a Russian paper mill on the effect of using liquors in a recirculating system on the properties of the pulp product. At a temperature of 125 to 130 degrees C., approximately one-third of the hot liquor is driven out of the digester, into a cooker prepared for digestion, which contains the wood and two-thirds of the necessary quantity of liquor, whereat the cooking liquor is heated up about 15 to 20 deg. C. Saving in steam is effected in this method of operating the sulphite digestion process. The results have shown that the saving in steam is 0.5 to 0.6 ton per ton of pulp, and in addition thereto the consumption of sulphur is reduced and the time of digestion diminished by about one hour.

An investigation was made to determine the effect of digesting pulp in this manner on the yield of pulp, the color and the strength of the pulp as well as on the consumption of bleach and the chemical and physical constants of the pulp. The use of the liquor in this manner lengthened the time of the digestion due to the concentration of the liquor being decreased, but inasmuch as the temperature of the liquor was increased by 15 to 20 deg. C., the net result was that the time of the digestion was no longer than in the ordinary process. There was no change in yield. The amount of wood that has not been properly digested is less in the new process than in the old, and the quality of the pulp is better. There is no difference in the amount of bleach used for bleaching the two pulps to obtain a product of the same degree of whiteness. No great difference was seen in the amount of as present in the pulps nor on the copper coefficient. Zellstoff und Papier, 1931. 576.

◆ Technology and Theory of Grinding Wood

Studies have been made of the various conditions that control the grinding of wood. The study is highly mathematical in character and a number of interesting curves have been drawn. The accompanying illustration shows the triangular temperature-grinding relationship. The lines which are parallel



to the hypothenuse of the triangle gives the temperature differentials between the temperature of the trough and that of the spray water. The rest of the article is too mathematical to be suitable for abstraction. The following is said, however, with respect to the length of the grinding surface of the stone. It is practically impossible that the fibers which adhere to the stone have a chance to be removed by the spray water during the short time that they are in contact with the latter. The high speed of the stone does not permit the removal of the fibers with the result that they are carried along by the stone and eventually deadground. These statements are doubted, and a different in-

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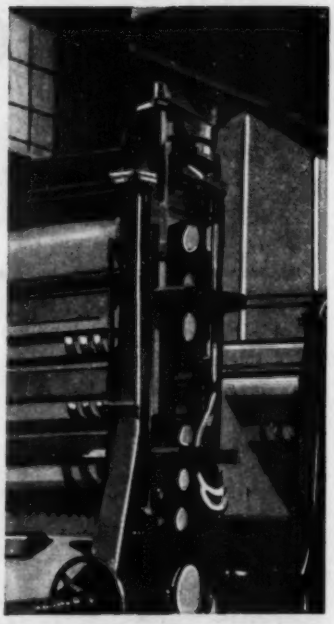

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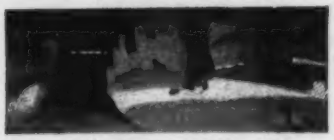

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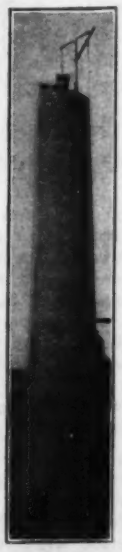

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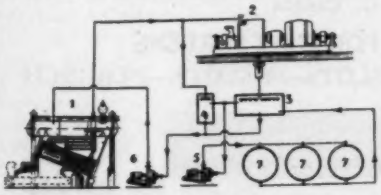
terpretation is given to the mechanism of the process. The entire article should be read to obtain its full value in explaining the grinding process and affording information which may be used to reduce the power consumption and to construct the grinder in the most effective manner. Strauch. Wochenblatt fuer Papierfabrikation, 1931, 1053-6.

◆ Straw Paper

A short history of the manufacture of straw paper is given. The modern manufacturing process is described. Three different methods of softening the straw are discussed in detail. The liquor used for digestion is calculated as ten to fifteen per cent of the weight of the stock. It is made from fresh burnt lime, or six per cent of fresh burnt lime and four per cent of calcined soda may be used also, based on the weight of the dry straw. The time of digestion is about six hours and the pressure three to four atmospheres. The treatment in kollergangs and beaters is also described. A red color is obtained in the straw by first coloring it green in the beater and then adding hydrochloric acid in dilute solution, which changes the green into red. H. Postl. Wochenblatt fuer Papierfabrikation, 1931, pages 1033 to 1035.

◆ Highly Compressed Hot Water in Paper Mills

The accompanying illustration shows an arrangement for the production of hot water under pressure which is said to be the ideal heating fluid in the papermill and is particularly advantageous for use in cooking and drying as well as for heating the mill. The steam



boiler is shown at (1). The steam produced is used in the prime mover (2) and the entire quantity of exhaust steam from the same is fed into the hot water producer (3). The preheater is shown at (4) and the hot water circulating pump at (5). The feedwater pump to the boilers is seen at (6) and the heat consumers at (7). It is claimed that there is considerable saving of fuel in this installation. The heat produced in the boilers is completely utilized and the temperature is maintained at an unvaried point in the heat consumers. H. Stenger. Wochenblatt fuer Papierfabrikation, 1931, 1077.

◆ Study of Logs for Groundwood

A study was made of the condition of the logs of wood that were used in the grinding process. The various types of wood logs are shown in picture form and the results obtained with each kind are indicated. The annual growth rings are considered in determining the effect of the condition of the wood on the groundwood product obtained. The pulp obtained is tested with the Schopper Riegler apparatus to determine its characteristics. It is felt that in the future the form of the log and its general condition will be taken into consideration in selecting wood for manufacture into the various grades of groundwood that are produced or rather with respect to the final products that are made from this wood. G. G. Klem. Der Papierfabrikant, 1931, pages 560-568.

◆ Sulphuric Acid in Roaster Gas

It has been found that the total sulphuric acid vapors present in roaster

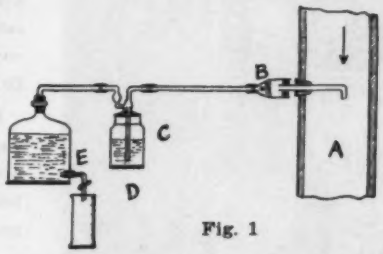


Fig. 1

gas can be caught under certain conditions by filtration without cooling through a tube filled with asbestos. The apparatus which is used in carrying out the process is shown in the accompanying illustration. The conduit car-

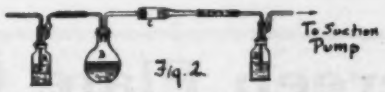


Fig. 2.

rying the roaster gases is shown at (A). A glass tube extends into this conduit and is bent at the end so that the bend is made in the direction of the flow of the gases. This glass tube connects with an asbestos filter shown at (B), the connection being made as close as possible to the roaster gas conduit. The wider portion of the glass tube is approximately sixty mm. long and has a diameter of about twenty mm. It leads to a wash bottle (C) of 250 cc. capacity, then to an aspirator flask (E) of about five liters capacity, which is itself connected with the measuring cylinder (D).

About one gram of asbestos is packed not too tightly in the asbestos filter, the latter being preliminarily washed with concentrated hydrochloric acid and then with water. The wash bottle is filled with 100 cc. of ten normal iodine solution, containing a little starch. Water is allowed to flow from the aspirator flask until the iodine solution is decolorized in (C). The asbestos filter is removed into an Erlenmeyer flask. The sulphuric acid is determined in accordance with the Raschig method (see Zeitschrift fuer angewandte Chemie, 1903, pages 617 and 818) with the aid of benzidine, the titration not being adversely affected by the presence of asbestos fibers. Titration with standard solution of sodium hydroxide may also be used for determining the sulphuric acid. Such a method is described in detail in the original article.

Experiments were also carried out to determine whether or not sulphuric acid is retained by the asbestos fibers in complete fashion. The idea was to establish if the sulphur trioxide, which may be present in the form of dry vapors in the roaster gases under certain special conditions, is absorbed completely by the asbestos fibers. The apparatus used in making these tests is shown in Fig. 2. The bottle (A) is filled with water and moist air is led over oleum in (B). The asbestos filter is shown at (C). When this filter is not used the reaction in the flask (D), which contains an indicator solution, is acid, the vapors being drawn through the apparatus by means of a suction pump which is connected to the tube leading out from the bottle (D). When the asbestos filter is filled with one gram of asbestos and the white vapors are allowed to pass through the same, they are visibly removed, as the gas behind the asbestos filter does not contain sulphur trioxide vapors. There was no change in the indicator solution in (D) until a period of ten minutes had elapsed. There is no question that the asbestos filter is effective in holding back completely the sulphur trioxide fumes that may be present in the roaster gases. Dr. R. Schepp and K. Schiel, Der Papierfabrikant, 1931, pages 761 to 2.

◆ Sulphite Cellulose From Resinous Wood

The pinewood is not digested in accordance with the sulphite process, for the reason that it contains too much rosin, particularly the wood in the interior of the logs, and this rosin prevents the penetration of the liquor into the interior of the wood fibers and its contact therewith. The extraction process is too expensive and hence the "Rosen" process in which the resinic acids are neutralized with the aid of weak alkali is used. The process is carried out at a temperature of 110 degrees and lasted for two to five hours. Then the pulp is washed with water and under certain conditions it is preliminarily treated with sulphur dioxide gas. A pinewood of seven to sixteen per cent resin content yields a pulp of good quality, containing 92.4 per cent of alphacellulose. The pulp can be bleached with two and one-half to four per cent chlorine. E. Meunier, La Papeterie, volume 53, pages 214 to 218.

◆ Pulp From Resinous Wood

It is well known that it is not an easy matter to manufacture a white paper from pulp that has been obtained from resinous wood, containing more than half a per cent of resins, when the bisulphite process is used. Many processes have been proposed for treating such woods and a newer process of more than ordinary interest is the Serlachius process, which depends on a preliminary elimination of the resins from the wood. A little soda is accordingly used for

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the purpose of rendering the resin soluble, the proportion being one per cent on the weight of the wood treated. The digestion is accomplished under a pressure of five to six kilograms with a liquor which contains three to four and one-half per cent of sulphur dioxide, and 0.8 to 1.5 per cent of calcium hydroxide. L'Industrie Chimique, 1931, 758.

◆ Cellulose From Fibrous Vegetable Material

The hot liquor, which contains, for example, five to six per cent of sodium hydroxide, is introduced in batches simultaneously at the top and the bottom of the digester to destroy enzymes and aerobic ferments which are present in the wood. The temperature is then held at 110 to 125 deg. C. for about two hours without the addition of alkali, after which heating is discontinued and about twenty-five per cent of the liquor is removed and replaced by an equal volume of aqueous sodium hydroxide sufficiently concentrated to bring the proportion of sodium hydroxide in the liquor to six to six and one-half per cent. This alkali is added over a period of half to one hour in such a way that contact of uncombined sodium hydroxide with the cellulose is avoided. The temperature is then raised to 170 to 175 deg. C. and digestion is continued for an additional three hours. The liquor should at all times contain at least a fifty per cent excess of phenolic substances. Hydrocarbons, which are formed during digestion, are distilled off during or after the cook to prevent staining of the cellulose. Surplus spent liquor is treated with carbon dioxide optionally after boiling with calcium hydroxide to remove colloidal impurities, and the precipitated phenolic substances are used either for preparing fresh cooling liquor or for biological purposes. O. C., G. S. and O. H. Strecker. British Patent No. 354,462, filed June 7, 1930.

◆ Handling and Storing Half-Dry Stock

The article is concerned with a description of a system for handling and conveying semi-dry stock around the plant with the aid of compressed air, which also affords an opportunity for simultaneous bleaching of the stock as well as for storing it and thereafter subjecting it to after-treatment. The stock that is adaptable for treatment in this manner contains twenty-five to forty per cent of moisture and includes halfstuff, chemical pulp, old paper that has been subjected to action in a kollergang, etc.

The illustrations in Figs. 1 and 2 show an apparatus for storing semi-dry stock. The first object of the arrangement is to secure as uniform as possible distribution of the stock in the high cylindrical container. As can be seen the stock is blown into the container with the aid of compressed air through the pipe (B) which has a nozzle (C) connected to the end that opens out in the container (R). This nozzle can be turned from side to side or rotated so that the flow of material is uniformly distributed within the container (R). The speed at which the nozzle rotates varies according to the rate at which the stock flows through the pipe (B). While the stock is being introduced into the storage bin or container in the aforementioned manner, it is continuously sprayed with bleach liquor through the perforated pipe (F) which extends across the width of the container. The flow of bleach liquor is such that every particle of the stock

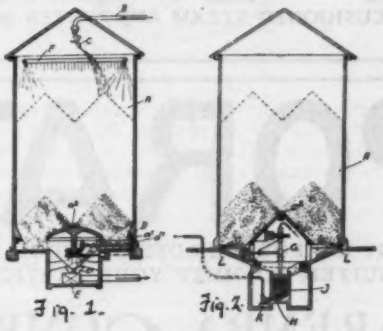

Fig. 1. Fig. 2.

introduced into the storage bin is effectively brought into contact with the bleaching agent. The bleach spray pipe (F) is ring-shaped. A screw conveyor is shown at (D) at the bottom of the cylindrical container (R). This conveyor is made in such a manner that it can travel around the circumference of the container and thus come in con-

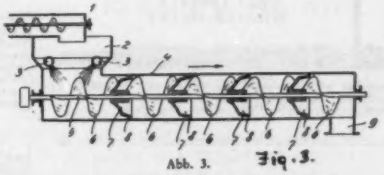

Abb. 3. Fig. 3.

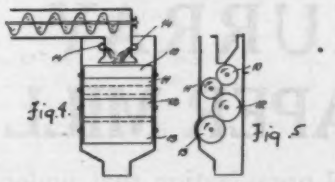

Fig. 4. Fig. 5

tact with every part of the stock that rests on the floor of the container. This rotation is accomplished by means of a bevel gear arrangement, which can be seen in Fig. 1. Fig. 2 shows another method of removing the stock from the storage bin or container. This consists of the use of a current of water which is fed into the container through a pipe which is located under the protective inverted hopper bottom shown at (a^2) in Fig. 2. This water nozzle can be rotated.

There is also described a method and apparatus for handling and treating the stock which is in the form of a paste or mud so that it can be subjected to a kneading or squeezing (quetsch) action. The treatment is accordingly not carried out in kollergangs or beaters but in the devices which are shown in Figs. 3, 4 and 5. The stock comes from the storage containers into a conveying device and from the screw conveyor into a funnel which is provided with spray tubes. There it is converted into a paste or mud form and is fed into a tubular housing in which a shaft is journaled in the length of the housing. This shaft has blades connected with it so that the stock is moved forward in a certain part of the apparatus, and in another part it is subjected to a squeezing or quetsch action. It is also possible to use quetsch rolls in the place of screw conveyors. This method in treating the stock is preferred to the regular beater method for the reason that the consumption of power in the former is more than in the latter and that the operation of the quetsch rolls is continuous while that of the beater is discontinuous. W. Schmid. Der Papierfarikant, 1931, pages 762-5.

◆ Beater

This beater is adapted for beating, mixing and bleaching halfstuff and pulp. The beater has a bedplate which is located to one side from the center of the vertical beater roll, and a back-fall which is arranged tangentially to the bedplate. The channel which lies behind the back-fall and becomes wider and deeper, is covered with a crown, so that the stock that is thrown out by the beater over the back-fall is properly directed in its passage through the trough. J. M. Voith, St. Poelten, Austria. Austrian Patent No. 124,567, filed May 15, 1931.

◆ Sulphite Bleached with Potassium Permanganate

The determination of the "Bjoerkman coefficient" gave varying results, when dried, underfibrinated stock was used, for the reason that stock of such sort is not completely broken down into fibers during the action of potassium permanganate which lasts one-half minute. A change in the method, which has already been adopted in a number of Swedish mills, which manufacture easy bleaching and semi-strong direct digested sulphite pulps, is therefore necessary. The following are the essential details of the new method. Two grams of air-dried stock are softened with five cc. of water. There are measured out in a ¾-liter beaker 185 cc. of water and twenty cc. of dilute sulphuric acid (one volume of concentrated sulphuric acid to nine volumes of water). The stock is brought into the beaker and the agitator is started. After half a minute or a minute, the stock has been disintegrated into fibers and then fifty cc. of potassium permanganate are added, and after five minutes forty cc. of tenth normal solution of ferrous-ammonium sulphate (39.22 grams of ferrous ammonium sulphate—$6H_2O$—plus 100 cc. of concentrated sulphuric acid per liter). After the color of the stock has been removed the motor driving the

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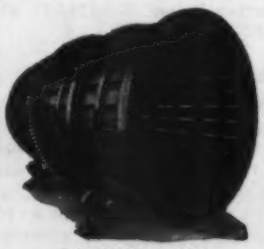

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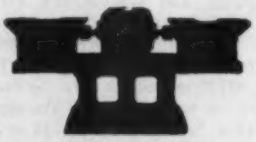

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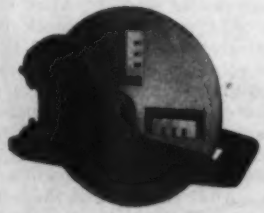
Murray Wood Cleaner barks round pulpwood as well as slabs, edgings, and saw mill refuse. Knot saw equipment optional.



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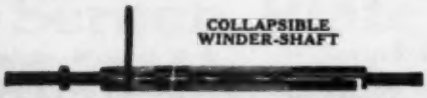

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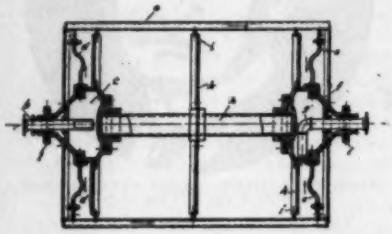
agitator is stopped and the pulp and water solution is filtered through a Buechner funnel. One hundred cc of the filtrate are titrated with tenth normal potassium permanganate solution. The temperature is 20 deg. C. The total consumption of potassium permanganate can be calculated into terms of chloride of lime or the conversion can be read off a curve. Svensk Papp. Tidn., volume 33, 928.

◆ Drying Drum for Paper Webs

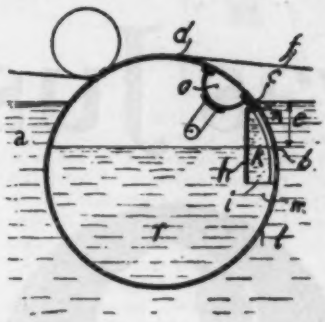
The new drying drum is shown in longitudinal section in the accompanying illustration. It is composed of a number of chambers (a) which are arranged around its surface. Steam is admitted to the drying cylinder through the hollow shaft, the inlet pipe being shown at (b) extending into a distributing chamber (c). Pipes (d) lead from this distributing chamber to the separate chambers (a) which are distributed over the circumference of the drum. Both the steam and condensate are removed simultaneously through the outlet pipes (e), which open out into a condensate and waste steam chamber (f), from which the condensate and waste steam are sucked out through the pipe (g) extending through the hollow shaft of the drum.



The advantage of the new drying cylinder is that the walls of the same are subjected to lower pressure than in the ordinary drying cylinder. Furthermore, the transmission of heat is more favorable and the temperature on the circumference of the drum is higher and the drying action of the drum more rapid. Maschinenfabrik Imperial G.m.b.H., Meissen, Germany. German Patent No. 531,605.

◆ Cylinder Wire for Paper Machines

This patent is concerned with a cylinder wire construction for papermaking machines, pasteboard machines, dehydrating machines, etc. The feature of the invention is the arrangement of devices within the cylinder wire which counterbalance the disturbing centrifugal forces and render them ineffective. As can be seen from the diagrammatic illustration, the felt (f) makes contact with the wire at (d), so that the web cannot be loosened from the cylinder until the point of removal of the web is reached at (g). There remains, therefore, only the stretch of the cylinder circumference from (b) to (c), over which the web of stock can be removed from the cylinder at high operating speeds. In order to avoid this, a partition (h) is arranged in a vertically suspended position at the point (c). This partition is suspended in the interior of the cylinder, and there is



connected to it a cross-wall (i), extending from the side of the cylinder. The result is that a space (k) is formed, which is closed off on the one hand by the aforementioned partitions walls (h) and (i), and on the other hand by the jacket (l) of the cylinder. The only open side is at (m). The suction box (o) is arranged alongside the space (k), but this suction box cannot exert any influence on the formation of the paper web. If the space (k) is filled with water at the moment that the cylinder is started operating, then it acts as a suction device in such a manner that all the points which lie between (b) and (c) are subjected to the same external super-pressure (e) as the portion (a-b) of the cylinder surface that is submerged. The result is that the paper web cannot lift off the cylinder over the arc (b-c). Felix Banning Jr., Stetting, Germany. German Patent No. 532,017.

◆ Wood Fibers As Papermaking Material

The advantages of using purified chemical wood for making the best grades of paper are discussed and the properties of such paper compared with that made from ragstock. The pulp in question contains 94 to 96 per cent of alphacellulose. The durability of the paper, as indicated by the loss of folding resistance after exposure to circulating air at 100 deg. C. for 72 hours, is equal to that of the best quality rag paper. The value of the accelerated ageing test at 100 deg. C. is confirmed by that fact that parallel results are obtained when ageing is conducted at 60 deg. C. for ten hours in oxygen under 200 pounds pressure or at 37.8 deg. C. in circulating air (forty-five per cent relative humidity) for one hundred days. G. A. Richter, Journal of the Franklin Institute, volume 212, pages 403-437.

◆ Some New Domestic Papermaking Inventions

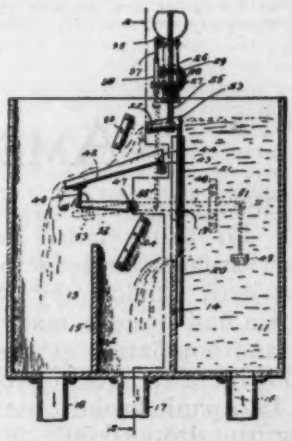
Sizing Process—As of December 15, 1931, patent rights have been secured by Arthur C. Dreshfield, assignor to Paper Makers Chemical Corporation, Kalamazoo, Mich., of a method of adding to the furnish an impalpable powder consisting of resin saponified with an alkali and combined with alum. The alum is added in the proportion of one part of size to two parts of alum, the alum and the size having been previously mixed in dry condition.

Preheating in Drying Paper—In this invention of William P. Argy, Turners Falls, Mass., the paper web is passed over a preheating roll prior to its passage through the last set of wet presses, the temperature being maintained between the limits of 100 and 105 deg. Fahr.

Beating Apparatus—A new form of beater is provided in a patent granted December 15, 1931, to John A. Heany, assignor to World Bestos Corporation, Paterson, N. J., which embodies a pulp compressing device.

Controlling Flow of Liquor to Digester—Robert B. Wolf, New York, assignor to Ligno-Cellulose Corporation, has patented (Dec. 22, 1931), a method of supplying steam under manual control to the digester at a predetermined rate of flow, while maintaining constant pressure.

Automatic Stock Regulator—Fred H. Maxey, Camden, Ark., has been allowed a patent (No. 424,978) on a stock regulator and equipment, consisting of a stock box having an inlet, a vertically moving gate over which the stock passes to the papermaking machine. The weight of stock discharged over the gate operates the gate, there being an overflow passage below its lower end and controlled by the gate. The overflow passage is increased in effective area as the gate lifts and decreased as the gate descends.



Bleached Kraft Pulp—A bleached woodpulp with an alpha cellulose content of 96 per cent and featured by a low pentosan content, less than 1 per cent, has been patented (Dec. 29, 1931), by George A. Richter, assignor to Brown Company, Berlin, N. H. The pulp is claimed to have a tear resistance greater than that of unbleached kraft pulp from similar wood, and similarly beaten.

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"We have had the greatest expansion of modern times. Reaction had to come—will prove healthful. Nothing can stay the rapid progress of the Republic. She is all right."

WHEN DEEP, DARK GLOOM RULED IN 1921, THOMAS FORTUNE RYAN SAID:

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"Our people are the greatest consumers of food and manufactured articles in the world in normal times—and normal times are coming back. . . ."

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In 1893 stark ruin stalked through the land. 467 banks failed in a few months. Mills, furnaces and factories shut down everywhere. Bankruptcy was on every hand. America had twice as many unemployed per thousand population as she has today. But she put them all back to work.

In 1907 panic broke loose. The production of pig iron dropped 50% in less than a year. All but the strongest men lost heart—"We are ruined," they declared, "recovery cannot come in our time." Yet in two years prosperity had returned.

In 1921, when many honest and thoughtful people were predicting worse conditions, the country was already beginning to climb to the greatest era of prosperity it had ever experienced.

History tells how America has fought and won 19 major depressions. Good times always follow hard times, as surely as day follows night. Prosperity always comes back. It is coming back *this* time, too.

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America Has Beaten 19 Major Depressions
She will Beat this one

THE NATIONAL PUBLISHERS ASSOCIATION

"As the most nearly self-contained nation, we have within our own boundaries the elemental factors for recovery."

(From the Recommendations of the Committee on Unemployment Plans and Suggestions of the President's Organization on Unemployment Relief.)

The COMMERCIAL OUTLOOK

New York, February 1, 1932.

THERE are some who state rather emphatically that the turn in the depression has come; there are many others who express the belief the worst of the very unfavorable business and economic condition for some months past has been seen and that, unless unforseen obstacles develop to postpone improvement, a gradual change for the better will be witnessed. As far as the paper industry is concerned more or less specifically, it would seem—and reports from leaders in the industry back up the assertion—but slight improvement of a concrete character has as yet occurred in market conditions, although sentiment within the trade is unquestionably on the mend.

Consumers, converters and distributors of paper are proceeding very carefully in their absorption of supplies, which has been their wont for a considerable period. The very low prices of paper, the tendency of advancement in some lines, the knowledge that stocks in buyers' hands are subnormally small, the probability that prices will jump once demand broadens—these and other influential factors are not inducing buyers to operate except to cover actual and immediate requirements. The aim of paper consumers, with few or no exceptions, is to keep stocks down; to remain in as liquid a condition as is feasible or possible, and let come what may—higher prices or whatnot—there is almost no buying ahead whatsoever. Consumers realize fully that paper prices are attractively low, but this means little to them at present because they take the view that they would rather meet higher costs later if matters improve in their own spheres and within the paper industry sufficiently to send prices upward.

Thus, while there is a fairly consistent demand for paper of the various classes, with business of some consequence developing day by day, the market lacks breadth; in short, buying from an aggregate standpoint hasn't the necessary volume to create what can be called an active market nor to have strengthening influence on prices. Paper merchants and jobbers are cautious in ordering from mills because they desire to keep their stocks down to a minimum, and consumers are interested only in satisfying their urgent wants. The competition for business is keen. It is clearly evident paper manufacturers are striving hard and diligently to get every order it is possible for them to corral, and it stands to reason that with not enough business to go around, there is not the stability in prices that is seen in more normal times.

Yet, perhaps the outstanding feature of the market situation at the moment is that manufacturers of paper are putting up greater resistance to any additional lowering of price levels. In some parts of the industry there are concerted efforts being made to maintain prices on steady levels, and in certain cases slight advances on some classes of paper have been put into effect. The difficulty is, it would appear, there is always someone ready to cut prices just enough to undo the labors of others in their effort to sustain market values.

Production of paper in the United States during November showed the usual seasonal decline, with the drop probably a little sharper than ordinarily is seen at that period of the year. According to identical mill reports to the American Paper and Pulp Association, a total of 389,377 net tons of paper of all kinds was produced in November, compared with 437,196 tons in the preceding month. The daily average output in November was 4 per cent under that of October last year and 5 per cent below the November, 1930, production. The total production in the first eleven months of 1931 reached 4,768,832 tons, against 5,249,445 tons by identical mills in the same time of 1930. Shipments from mills in November aggregated 385,279 tons, contrasted with 442,280 tons in the preceding month, while stocks on hand at the end of November were 256,585 tons, against 252,547 tons a month before.

Production of newsprint paper in the United States and Canada in December totaled 259,034 tons, compared with 269,792 tons in the preceding month and 284,031 tons in December, 1930, according to the News Print Service Bureau. The December last production was at 55 per cent of rated capacity, against 59.6 per cent in November and 62.5 per cent in December, 1930. Production in the United States amounted to 93,861 tons, or 62.9 per cent of capacity, contrasted with 94,149 tons or 65.6 per cent in November last year, and 99,276 tons or 68.8 per cent in December of 1930. Canadian output reached 165,173 tons or at 51.3 per cent in December, against 175,643 tons or 56.8 per cent in November last and 184,755 tons or 59.5 per cent in December, 1930.

For the full year 1931 the production of newsprint in Canada reached 2,220,775 tons, or at 58.1 per cent of mills' capacity, against 2,504.147 tons or 69.4 per cent in 1930. Production in the United States last year totaled 1,157,497 tons or at 65.5 per cent of capacity, against 1,282,372 tons or 76 per cent of capacity during 1930. For all of North America, including Newfoundland and Mexico, the production in 1931 was 3,688,450 tons, compared with 4,088,064 tons in the preceding calendar year.

Paper board production in the United States in November last amounted to 182,208 net tons, showing an appreciable decrease from the 218,157 tons manufactured in the preceding month, and also a decline compared with 203,381 tons produced in November, 1930, according to the U. S. Department of Commerce monthly summary of the board industry. Production in November was at 59.9 per cent of mills' capacity, against 63.7 per cent in the preceding month and 66.4 per cent in the previous November. Total output of board during the first eleven months of 1931 was 2,388,744 tons, contrasted with 2,524,921 tons in the corresponding period of 1930. New orders for board received by manufacturers in November called for 173,936 tons, against 218,527 tons in October, and unfilled orders held at the end of November were for a total of 61,067 tons, compared with 61,365 tons a month earlier. Shipments of board from mills aggregated 174,234 tons in November, against 218,489 tons in the preceding month, while stocks of board at mills at the end of November amounted to 87,222 tons, contrasted with 79,248 tons at the end of October last.

Manufacturers of southern kraft paper have effected a rise in price of their product, and for the first time in a considerable while there is something resembling stability in this branch of the trade. The new price on southern kraft is 3.25 cents per pound delivered New York, and, according to reports, mills are adhering quite firmly to this price basis. So far as is reported, the advance in price has not stimulated demand to any noticeable degree, but on the other hand, it has not curtailed buying. Orders are coming in fairly steadily although for restricted tonnage, it is said.

Fine papers are well maintained on quotable levels established at the outset of the new year, and business is on a moderate scale. The statement has been made by one in a position to know that the writing paper manufacturing industry operated during 1931 at 68 per cent of normal production, and there seems every reason to believe that fine paper mills are now working at about this same percentage basis. Book papers are moving in consistent fashion although principally on contracts, the current demand lacking volume. Prices have recorded little or no further change. Tissue paper is in routine call, while fancy and specialty papers are enjoying at least fair demand.

Boxboards are most unstable in price, and on exceptionally low levels. Mills in the East have accepted orders for plain chip and news board at $20 a ton delivered New York, but it is understood a movement is on foot to make $22 the minimum price. "Sniping" of orders at cut prices is going on in the board trade and is greatly unsettling the market.

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Domestic RAW MATERIALS

◆ Papermaking Rags

There has been some little expansion of buying interest in certain grades of papermaking rags since the outset of the new year. Paper mill purchasing agents in some few cases at least have been in more evidence as buyers, and while they have proceeded ultra-cautiously in absorbing supplies and have confined their orders to comparatively small parcels of rags, nevertheless the market has developed slightly broader activity.

The situation from a demand standpoint, however, is subnormal decidedly. It would seem as if a large majority of paper manufacturers either have their warehouses amply stocked with rags or else they find their requirements so restricted under prevailing market circumstances they do not have to engage in much buying of such raw material at present. Certainly, there is nothing even so much as approaching the usual volume of demand emanating from mills at this time of the year. Moreover, the buying being done is directed largely to a few grades. Fine paper producers are taking some kinds of new cotton cuttings in small quantities out of the market and are occasionally purchasing old thirds and blues, while roofing felt manufacturers are buying rags on a reserved scale; otherwise dealers and importers admit it is a difficult task indeed to sell rags almost regardless of the prices they put on their offerings.

Nevertheless it is noted—and this is something over which paper manufacturers might ponder—that those few classes of rags which have been wanted have developed a firmer price tone, reflecting the limited supplies of such material available. The very low levels to which rag prices have sunk, the narrow consuming market that has existed for some time, and other existing market factors have combined to drive many rag collectors, packers and dealers out of the industry, and to reduce importations from abroad almost to nothing, and there are not many sizable accumulations of rags held awaiting a sale to paper mills. Some descriptions are actually scarce, as for example, a run of demand recently on new soft unbleached muslin cuttings has about cleaned out the market of this grade and buyers seeking additional supplies lately have been frequently called on to meet higher prices.

Similarly, the market is surprisingly clear of usual stocks of roofing rags. Mills in the East have paid 60 cents per hundred pounds f.o.b. shipping points for No. 1 domestic roofing stock, and 42½ and 45 cents for No. 2 packing, and these prices are now exhibiting a degree of firmness where an advance seems imminent. Old white cottons have been in relatively slow call, but blue cottons have sold moderately well at 1.25 cents to slightly higher per pound, depending on the quality, for repacked thirds and blues f.o.b. dealers' points.

Quotations on new No. 1 white shirt cuttings are on a wide range, depending on the eagerness or otherwise of dealers to market these rags, but it is said that papermakers have bought at 4.50 cents a pound at shipping points and probably at a little less. New unbleached muslins are about 5.75 cents at shipping points, blue overall cuttings 4.25 cents, light silesias 4.25 cents, khaki cuttings of O.D. quality 4 to 4.25 cents, and No. 1 washables 1.75 to 2 cents.

Demand for foreign rags of practically every grade is just about at a standstill. Roofing paper manufacturers are buying few or no imported rags since they can get domestic rags at cheaper costs, and the better classes of foreign stock are moving only in very spasmodic fashion. Prices are strictly a nominal matter as importers are bringing few lots of rags in from Europe and are at a loss to say what market values really are.

Average quotations f.o.b. shipping points and ex dock New York, many of which should be considered nominal, follow:

NEW STOCK

	New York and Chicago
White shirt cuttings, No. 1	4.50-4.75
White shirt cuttings, No. 2	3.25-3.50
Fancy shirt cuttings	1.75-2.00
Washables, No. 1	1.75-2.00
Unbleached muslins	5.75-6.00
White lawns	3.50-3.75
Overall cuttings, blue	4.25-4.50
Black silesias	2.25-2.50
Canton flannels, bleached	4.75-5.00
Canton flannels, unbleached	4.25-4.50
Shoe cuttings, bleached	4.50-4.75
Shoe cuttings, unbleached	4.00-4.25
Light silesias	4.00-4.25
O. D. khaki cuttings	4.00-4.25
Mixed khaki cuttings	3.50-3.75
Corduroy cuttings	2.25-2.50
Cottonade cuttings	1.75-2.00
Linens, No. 1 white, foreign	7.00-7.50
Light prints, foreign	2.25-2.50

OLD STOCK

Whites, No. 1, repacked	3.00-3.50
Whites, No. 2, repacked	1.75-2.00
Whites, house soiled	1.40-1.60
Whites, street soiled	1.20-1.40
Thirds and blues, rough	.65- .80
Thirds and blues, repacked	1.20-1.40
Lace curtains	2.75-3.00
Black stockings	1.75-2.00
Cotton canvas, No. 1	3.00-3.25
White cotton batting	1.00-1.25
Roofing, No. 1 (cloth strippings)	.60- .70
Roofing, No. 2	.45- .55
Linsey garments, foreign	.70- .75
Dark colored cottons, foreign	.55- .60
Blue linens, foreign	2.75-3.00
Gray linens, foreign	3.00-3.25
White linens, foreign	4.75-5.00
Light prints, extra foreign	1.75-2.00

◆ Rope and Bagging

Paper manufacturers seem little desirous of old rope and scrap bagging, and the continued dearth of worthwhile demand for these raw materials has resulted in a further depreciation in market values. Old manila rope of No. 1 quality is reported down to 1.50 cents a pound f.o.b. dealers' shipping points, and perhaps purchases are possible at slightly less, while imported old manila rope is said to be available at 1.40 cents per pound ex dock New York and other American Atlantic ports.

Scrap bagging prices have receded to 75 cents per hundred pounds or thereabouts for No. 1 scrap at points of shipment, and roofing bagging to 35-40 cents a hundred. Even at these low prices consumers are taking but small tonnage out of the market. Old gunny is down to where purchases of No. 1 domestic gunny are reported possible at 90 cents per hundred pounds at shipping points.

F.o.b. shipping point and ex dock New York quotations follow:

Gunny, No. 1 domestic	.90-1.00
Gunny, No. 1 foreign	.90-1.00
Scrap bagging, No. 1	.75- .85
Roofing bagging	.35- .40
Wool tares, heavy	1.00-1.15
Wool tares, light	1.00-1.10
Manila rope, No. 1 foreign	1.40-1.60
Manila rope, No. 1 domestic	1.50-1.75
Sisal strings	1.25-1.50
Mixed strings	.60- .70

◆ Old Paper

Some classes of old paper are showing increased market activity and have steadied in price but the market as a whole is still more or less in the doldrums with values on low levels and chiefly in favor of buyers. In the East, prices of folded news have firmed up to where dealers are asking and obtaining 30 cents per hundred pounds f.o.b. shipping points in most cases, representing at least a slight rise from the recent bottom level. Old books and magazines have moved in a more or less consistent manner and at prices of around 65 cents a hundred pounds in the East and several dollars per ton above this figure in the Middle West. Mixed paper remains exceedingly low-priced, with reports of sales in the New York district at as low as 10 cents a hundred pounds although with dealers as a rule quoting at least 15 cents, and with above this price prevailing in the West. Hard white shavings of No. 1 quality are reported available at around 2 cents a pound at shipping points, and No. 1 soft white shavings at an average of 1.60 cents per pound. Ledger stock, kraft grades and manilas are in little more than routine demand, and low in price.

The following are quotations f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	1.90-2.25
Hard white shavings, No. 2	1.70-1.90
Soft white shavings	1.50-1.75
Colored shavings	.50- .60
Heavy book, No. 1	.65- .75
Crumpled book, No. 1	.50- .60
Ledger stock	.60- .90
Kraft, No. 1	.80-1.00
New kraft cuttings	1.40-1.50
White blank news	1.30-1.40
Manilas, No. 1	.35- .50
Manilas, container	.25- .35
Folded news	.30- .40
Sulphite mill wrappings	.25- .50
Old corrugated boxes	.30- .40
New corrugated box cuttings	.40- .50
Mixed paper, No. 1	.15- .30
Common paper	.10- .20

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◆ Pulpwood

It is quite evident that sellers in the pulpwood market outnumber buyers, and, as would be expected under the circumstances, prices are easy of tone. Most pulp grinders appear to have their needs amply covered for a time and to be little disposed to augment their stocks. It is said that good peeled wood is available at $8 per cord at points of shipment though prices are very uncertain and to some degree lacking an established basis.

Exports of pulpwood from Canada in December last amounted to 40,596 cords, valued at $380,451, all of which came to the United States, contrasted with 54,871 cords of a value of $512,663 exported in the preceding month, and 64,268 cords of a value of $755,277 in the similar month of 1930.

◆ Mechanical Pulp

Demand for mechanical pulp is narrow at best and yet occasional sales are reported. Buyers without question have the upper hand, and in most cases are dictating prices, with the result market values are easy of tone. Canadian grinders are reported pressing for sales, and now and then a purchase is recorded at prices well under recognized quotational levels. Canadian groundwood is said to be fairly freely available at $20 per short ton f.o.b. pulp mills, and probably at less, while domestic groundwood is quoted at $23 to $25 a ton at shipping points, depending on the haul to consuming centers and the air dry test.

Production of groundwood in the United States in November last amounted to 73,994 net tons, compared with 68,112 tons produced by identical mills in the preceding month, according to American Paper and Pulp Association statistics. Stocks at producing mills at the end of November totaled 54,852 tons, against 49,616 tons a month previously.

◆ Chemical Pulp

Paper manufacturers are showing little disposition to purchase domestic chemical pulp except in very guarded fashion against definite requirements, and a listless market prevails. There is a fair movement of supplies into consuming channels against contracts and back orders but it is generally acknowledged that current activity in the trade is of small consequence. Prices are on the soft side and are being influenced adversely by the low prices of imported pulps, domestic producers finding it imperative to quote rates somewhere in line with the foreign product to be able to compete. West Coast bleached sulphite is reported available down around 2.10 cents per pound ex dock Atlantic seaboard, and perhaps at even under this price level. Unbleached sulphite is said to be available at 1.75 to 2 cents a pound at pulp mills for book grades and at 1.65 cents for newsprint quality, while bleached soda pulp manufacturers are offering their product at 2.50 cents a pound delivered paper mills.

Mills in the United States produced a total of 85,909 net tons of chemical pulp during November, 1931, against 92,141 tons in the preceding month, and had stocks on hand at the end of November aggregating 19,423 tons, compared with 17,887 tons a month before, according to identical mill reports to the American Paper and Pulp Association.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	2.10-3.50
Easy bleaching sulphite	1.90-2.10
Unbleached sulphite, No. 1 strong (news grade)	1.65-1.90
Unbleached sulphite, No. 1 book	1.75-2.00
Soda pulp bleached (delivered)	2.25-2.50
Kraft	1.75-2.50
Screenings, refined	(Nominal)

◆ Chemicals

Not many changes were registered in papermaking chemical quotations during the recent contracting season, prices in a majority of instances adhering to fairly steady levels. Prices of bleaching powder, soda ash and caustic soda are unaltered, and consumers are reported absorbing supplies in a consistent manner although in limited amounts. Domestic casein is available at 7.50 cents a pound for the standard ground and 8 cents for the finely ground, while the imported article is quoted at 8.50 to 9.50 cents. Brimstone holds to a price basis of $18 per long ton f.o.b. mines for sizable tonnages. Rosin prices have been reduced to 3.60 cents a pound for the usual grade of gum rosin used by paper mills.

Average quotations are as follows:

Alum, lump ammonia	3.50- 3.75
Alum, lump starch	3.75- 4.00
Blanc fixe, powdered	3.25- 3.50
Bleaching powder	1.75- 2.00
Brimstone (long ton, at mine)	18.00-20.00
Casein (duty paid)	7.50- 9.50
Caustic soda, solid, spot delivery	2.50- 2.55
China clay, domestic washed	7.00-11.00
China clay, foreign	11.00-13.00
Rosin	3.60- 3.75
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.15- 1.25
Starch, papermaker's in bags	2.54-
Talc (ton)	16.00-18.00

❖ ❖ ❖

◆ Purchasing Agents' Service

Pulp and paper mill purchasing agents are to have the benefit of a commodity service through the Statistical Department of the American Paper and Pulp Association which it is hoped will enable them to keep track of supply and demand conditions in the raw materials market. Jesse H. Neal, general manager of the association, has been approached by mills for service of this kind and has taken steps through John A. C. Kavanagh, director of the Statistical Department, to enlist the co-operation of mill purchasing agents in the work.

It is Mr. Neal's belief that if mill purchasing agents were kept familiar with the condition of raw material stocks throughout the industry, the quantity of forward buying and other market conditions, they would be less influenced by rumors and selling pressure.

In a "Raw Materials Supplement" to the *Weekly Business Review* of the association for January 20, Mr. Kavanagh asks the co-operation of purchasing agents to the extent of making brief monthly reports to him. From reports received in this way, which will be held in confidence, a confidential composite report will be prepared and sent out to the purchasing agents of mills contributing information which will assist in determining the state of inventory and the amount of buying going on in a large cross section of the country.

◆ New Noble & Wood Products

Announcement is made by the Noble & Wood Machine Co., Hoosick Falls, N. Y., of a new type precision stock consistency regulator which makes possible remarkably close control of stock consistency. The new regulator is a compact and remarkably precise unit which can be installed at any point where uniform consistency is required. Operating entirely without human attention or supervision, it eliminates the trouble and inaccuracies associated with sampling and floating leverage types of stock control.

In operation, the entire stock supply at the point of installation passes through a mixing chest, where positive agitation keeps waters and fibers thoroughly and uniformly mixed. In its flow through an unagitated chamber the stock actuates a sensitive finder which, through a precise compensating device, controls the make-up water valve. This valve, responding to the slightest changes in stock density, opens or closes as necessary to supply the required quantity of diluting water to the stock. The diluting water, which may be clear or white water, is introduced at a point before the mixing chest, so that complete mixing of the added water with the basic stock is assured.

Although extremely sensitive, the regulator is sturdily built and ample enough in capacity to meet all mill requirements. Power is derived from a small motor, at very low operating cost.

Other new products of the Noble & Wood Company are an improved pulper and the Thune Screw Press or Concentrator, for which the company has exclusive American manufacturing rights. The pulper is of the kneading type, and is suitable for conditions where space requirements do not permit installation of the Noble & Wood pulping engine, and for reduction of waste papers and broke in small batches where special mill conditions prevail. The Thune Screw Press or Concentrator is a stock dewatering device used for concentrating all kinds of cellulose stock to high densities. It is in successful operation in the United States and Canada.

Anyone interested in any of the above devices can secure full details by writing the Noble & Wood Machine Company, Hoosick Falls, N. Y.

◆ THE MANUFACTURE and sale of asphalt roofing and the industrial emulsion activities formerly handled by the Flintkote Company, Boston, is now being carried on by the Flintkote Corporation, a new, wholly owned subsidiary company of the Flintkote Company. No change in operating policies or personnel is involved.

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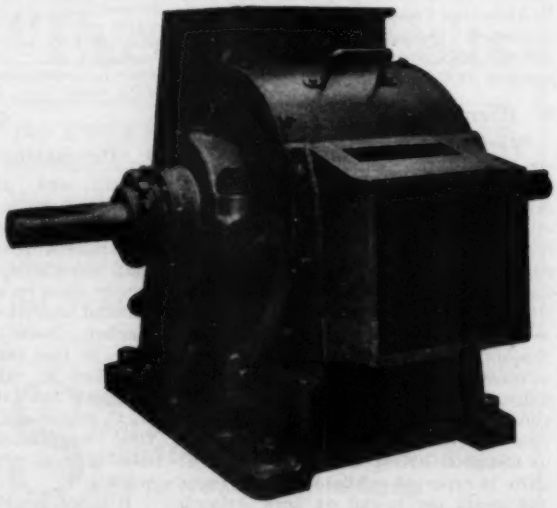

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Import and Export MARKETS

EXPORTS

Exports of paper and paper products from the United States scored a little gain in value during November as compared with the preceding month but were well below the exportations in the same month of 1930. According to official statistics, compiled and issued by the U. S. Department of Commerce in Washington, exports last November reached a total declared value of $1,763,428, against $1,756,519 in October last year and $2,066,111 in November, 1930. Exports during the first eleven months of 1931 totaled in value $20,884,621, representing an appreciable decline, contrasted with shipments valued at $28,323,149 in the corresponding period of 1930.

Newsprint exports in November last amounted to 2,232,794 pounds, valued at $64,222, against 2,058,049 pounds of a value of $58,443 in the preceding month and 1,266,509 pounds of a value of $44,857 in November, 1930. Uncoated book paper exports in November were 1,530,954 pounds of a value of $85,241, compared with 1,388,508 pounds of a value of $95,156 in the same month of 1930. Wrapping paper exports totaled 2,645,758 pounds, valued at $142,921, in November, against 3,997,664 pounds of a value of $231,869 in the same month of the preceding year. Exports of writing paper in November were valued at $87,062, compared with $126,540 in the similar month the year before, while tissue paper shipments were valued at $44,140, against $64,462 in November, 1930.

Boxboard exports in November reached a value of $134,924, showing a gain over the shipments of a value of $71,051 in the preceding November, while other paperboard exports were valued at $73,376, against $99,476 in the same month of 1930. Paper box exports in November were valued at $71,285, and paper bag shipments at $58,018.

IMPORTS

◆ Wood Pulp

With arrivals from abroad rather heavy, with most consumers apparently having fair-sized stocks of pulp on hand and additional large tonnages on commitment, and with consumption falling below expectations owing to the failure of demand for paper and board to reach the dimensions anticipated, it is not surprising that the market for imported wood pulp is quiet at present. There is, of course, a certain amount of activity springing up day by day but it is mostly of a routine sort, and pulp importers and agents in New York candidly acknowledge that it is not an easy task to sell pulp at the moment and that the volume of business being consummated is falling well short of normal.

Nevertheless there have been happenings of importance in the foreign pulp situation. Chief among these, it is believed, is that labor troubles have reached a stage in the Swedish pulp manufacturing industry where it appears quite probable a shutdown of the pulp mills in that country will take place. Another development of note is that Swedish producers have agreed on a fixed minimum price for strong unbleached sulphite, the same as is done by the manufacturers of kraft pulp in Sweden, and the price announced for strong sulphite is 1.60 cents per pound landed American Atlantic ports. Still another important development is that, protected by a tariff barrier on paper imports recently put into effect, paper manufacturers in England are purchasing larger amounts of pulp from Scandinavia, and give promise of constituting a broader market for sulphite and kraft pulps, as well as groundwood, than heretofore.

Not much change has occurred in quoted levels on imported wood pulp during the last month. For a time the trend was downward and the market receded to a slight extent; meanwhile, however, the tone seems to have stiffened and in some instances quotations have sought a little higher plane. Prices at present are irregular at best. It seems as if there is always one or more mills abroad prepared to shade recognized market prices to get orders, which makes for much uncertainty in prevailing values. Moreover, it is not unusual for a papermaker or an importer or agent on this side of the Atlantic to press a specific tonnage of pulp onto an unwilling market and to dispose of the pulp in question for whatever it will bring in the way of price. In short, it remains a buyer's market.

Bleached sulphite of prime quality is reported available at 2 cents per pound upwards ex dock New York or other American Atlantic ports, easy bleaching sulphite at around 1.85 cents, and strong unbleached sulphite at 1.50 to 1.60 cents. Kraft pulp prices are relatively steady on a 1.50 cents basis for prime standard Swedish kraft, with some mill brands quoted up around 1.70 cents. Prime dry groundwood of Scandinavian origin is on offer at $22 per short ton ex dock Atlantic seaboard.

Imports of chemical wood pulp into the United States reached a new high level during November for any month in 1931, totaling 150,936 long tons, valued at $6,115,423, compared with 100,910 tons of a value of $4,325,012 imported in the preceding month, and 134,893 tons of a value of $6,446,843 in the same month of 1930. The November imports brought the total for the first eleven months of last year up to 1,133,720 tons, compared with 1,224,122 tons in the similar period of 1930.

Groundwood imports in November amounted to 18,809 long tons, valued at $369,737, contrasted with 19,502 tons of a declared value of $426,473 in the preceding month, and 19,421 tons of a value of $510,675 in November, 1930. The eleven-month imports in 1931 totaled 167,767 tons of a value of $4,044,960, against 243,042 tons of a value of $6,574,620 in the same time of 1930.

Current market quotations ex dock New York, and receipts at the port of New York during January, 1932, these data being taken from manifests of steamers reaching that port last month, follow:

Bleached sulphite, No. 1	2.00- 3.50
Unbleached sulphite, strong No. 1	1.50- 1.75
Unbleached sulphite, No. 2	1.40- 1.50
Easy bleaching sulphite	1.75- 2.00
Mitscherlich, unbleached, genuine	1.85- 2.00
Mitscherlich, unbleached, ordinary	1.60- 1.75
Kraft, standard Swedish	1.50- 1.75
Groundwood, per ton (dry)	22.00-23.00

Castle & Overton, Inc., 1,613 bls. from Hamburg, 1,721 Kotka, 1,532 Wiborg and 402 Rotterdam; Lagerloef Trading Co., Inc., 2,525 bls. from Helsingfors, 260 Kotka, 260 Wiborg and 1,243 Hango; Parsons & Whittemore, Inc., 720 bls. from Gothenburg and 250 Oslo; Guaranty Trust Co., 864 bls. from Gothenburg; E. M. Sergeant Co., 1,196 bls. from Gothenburg and 330 Oslo; Johaneson, Wales & Sparre, Inc., 14,443 bls. from Sundsvall, 598 Gothenburg and 375 Hamburg; Bulkley, Dunton & Co., 4,075 bls. from Sundsvall and 3,375 Stugsund; K. J. Lundahl, 2,000 bls. from Sundsvall; Pagel, Horton & Co., Inc., 4,125 bls. from Gafle and 6,750 Swedish ports; Stora Kopparberg Corp., 1,850 bls. from Skutakar and 2,250 Swedish ports; Brown Bros. & Co., 3,875 bls. from Swedish ports; Chemical Bank, 5,700 bls. from Oslo; Atterbury Bros., 1,368 bls. from Oslo; E. J. Keller Co., 828 bls. from Hamburg; Price & Pierce, Ltd., 2,100 bls. from Swedish ports; M. Gottesman & Co., Inc., 800 bls. from Sibenik; Perkins-Goodwin Co., 300 bls. from Oslo; Irving Trust Co., 390 bls. from Wiborg, 1,000 Bremen and 390 Kotka; Order, 5,078 bls. from Kotka, 289 Bergen, 13,200 Hernosand, 2,775 Swedish ports, 793 Hamburg, 520 Kirkkoniemi, 1,406 Wiborg and 845 Tolkis.

◆ Paper Stock

Imports of papermaking rags into the United States in November last amounted to 7,017,195 pounds of a value of $94,859, according to official U. S. Department of Commerce statistics, bringing the total for the first eleven months of last year up to 109,047,818 pounds,

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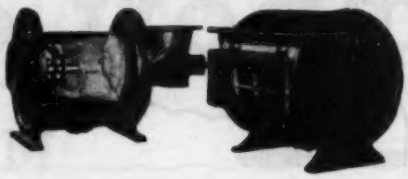

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valued at $1,472,630, compared with 272,066,246 pounds of a declared value of $5,387,255 in the similar period of 1930. Imports of other paper stock during the eleven-month period last year totaled 104,555,745 pounds, valued at $1,408,432, against 211,925,029 pounds of a value of $2,877,492 in the corresponding time of 1930.

Imports of paper stock during January continued on the short side, judging from receipts through the port of New York. Arrivals of papermaking materials of all kinds at that port last month, these data being taken from manifests of steamers reaching New York during the month and therefore unofficial, were as follows:

Old Rope—Bank of New York & Trust Co., 208 coils; Brown Bros. & Co., 31 bls.; International Purchasing Co., 177 coils; United Fruit Co., 2 bls.; Order, 40 bls.

Old Bagging—S. Birkenstein & Sons, 92 bls.; Darmstadt, Scott & Courtney, 170 bls.; Bank of New York & Trust Co., 49 bls.; Banca Commerciale Italiana Trust Co., 130 bls.; Chase National Bank, 321 bls.; E. J. Keller Co., 227 bls.; Chemical Bank, 121 bls.; Order, 408 bls.

Rags—Castle & Overton, Inc., 137 bls.; S. Birkenstein & Sons, 185 bls.; J. Cohen & Son, 12 bls.; Oceanic Trading Co., 7 bls.; E. Butterworth & Co., 78 bls.; Victor Galaup, Inc., 114 bls.; J. Reiss & Co., 16 bls.; A. Hyman, 29 bls.; Darmstadt, Scott & Courtney, 7 bls.; Bank of New York & Trust Co., 67 bls.; Irving Trust Co., 119 bls.; Marine Midland Trust Co., 84 bls.; Chemical Bank, 74 bls.; Chase National Bank, 82 bls.; American Express Co., 46 bls.; Order, 235 bls.

Miscellaneous Paper Stock—R. F. Downing & Co., 170 bls.; Milton Snedeker Corp., 292 bls.; Bank of New York & Trust Co., 86 bls.; Castle & Overton, Inc., 348 bls.; E. J. Keller Co., 361 bls.; New York Trust Co., 140 bls.; Order, 85 bls.

◆ Paper

From a value standpoint, importations of paper into the United States in November last were slightly under the preceding month's imports, reaching a total value of $10,033,722, compared with imports of a value of $10,660,058 in October last year, and $12,316,594 in November, 1930, according to figures issued by the U. S. Department of Commerce in Washington. Imports during the first eleven months of 1931 aggregated in value $115,983,901, showing an appreciable decrease from the $135,294,879 worth of paper imported in the similar period of 1930.

Paper imports remained on a small scale last month, taking the receipts through the port of New York as a criterion. Arrivals of all kinds of paper at that port in January, 1932, these data being taken from manifests of steamers reaching New York during the month and therefore unofficial, were as follows:

Printing—E. Dietzgen & Co., 74 cs. from Rotterdam and 12 cs. Hamburg; Steiner Paper Corp., 28 cs. from Rotterdam and 30 cs. Bremen; W. H. Bell, 11,710 reels from Liverpool, N. S.; Perkins-Goodwin Co., 581 reels from Bremen and 674 reels Hamburg; A. S. Zabriskie, 45 reels from Kotka; Jay Madden Corp., 99 reels from Hamburg; Gilman Paper Co., 494 rolls from Norrkoeping; Chase National Bank, 70 bls. from Gothenburg; Lunham & Reeve, 42 rolls and 92 bls. from Gothenburg; Bank of Montreal, 27,818 rolls from Corner Brook, N. F.; American Express Co., 9 reels from Glasgow; Keuffel & Esser Co., 12 rolls from Hamburg; J. E. Bernard & Co., 125 reels from Rotterdam; Baldwin Paper Co., 119 reels from Hamburg; Burroughs, Wellcome & Co., 10 cs. from London; Henschel, Naeve & Co., 3 cs. from Southampton; Martin & Bechtold, 8 cs. from Hamburg; Order, 2,861 reels and 37 bls. from Bremen, 470 reels Oslo, 962 reels Kotka, 412 reels Wiborg and 384 reels Hamburg.

Wrapping—Borregaard Co., 1,772 reels and 127 bls. from Gothenburg; Sylvania Industrial Corp., 24 cs. from Antwerp; National City Bank, 30 bls. from Bilbao; Robert Wilson Paper Corp., 69 cs. from Glasgow; Borden & Riley Paper Co., 12 cs. from Hamburg and 13 cs. Bremen; D. C. Andrews & Co., 24 cs. from Southampton; Manufacturers Trust Co., 150 rolls from Antwerp; C. Steiner, 18 bls. from Hamburg.

Cigarette—American Tobacco Co., 1,350 cs. from Havre; Standard Products Corp., 402 cs. from Havre, 7 cs. Yokohama and 54 cs. Southampton; Champagne Paper Corp., 381 cs. from Havre; M. Spiegel & Sons, 19 cs. from Hamburg; G. A. Henshaw & Son, 55 cs. from Southampton; P. J. Schweitzer, Inc., 10 cs. from Marseilles; Order, 5 cs. from Hamburg.

Filter—C. Sleicher & Scholl Co., 10 cs. from Hamburg; J. Manheimer, 51 bls. from Southampton; E. Fougera & Co., 91 cs. from Southampton; H. Reeve Angel & Co., 8 cs. from London and 19 cs. Southampton; American-Hawaiian S.S. Co., 4 cs. from London and 2 cs. Southampton; F. Henjes, Jr., Inc., 3 cs. from Bremen; Order, 33 bls. from Marseilles.

Tissue—Schwarz Paper Co., 16 cs. from Liverpool; Schenkers, Inc., 2 cs. from Hamburg; W. J. Byrnes & Co., 3 cs. from Southampton; Order, 10 bls. from Kotka.

Drawing—Keuffel & Esser Co., 25 cs. from Hamburg and 5 cs. Rotterdam; M. Grumbacher, 11 cs. from Havre; H. Reeve Angel & Co., 11 cs. from London; Devoe & Raynolds Co., 3 cs. from Southampton.

Photo—Gevaert Co. of America, 174 cs. from Antwerp; J. J. Gavin & Co., 5 cs. from Southampton; Globe Shipping Co., 156 cs. from Bremen.

Hanging—R. F. Downing & Co., 8 bls. from Kobe, 11 bls. London and 7 bls. Southampton; F. A. Binder, 19 bls. from Bremen and 20 cs. Hamburg; Globe Shipping Co., 33 bls. from Hamburg; J. E. Bernard & Co., 12 bls. from Hamburg; F. J. Emmerich & Co., 24 bls. from Hamburg and 12 bls. Liverpool; C. A. Haynes & Co., 32 cs. from London and 6 cs. Southampton; R. Cummings, 10 bls. from Rotterdam; Heemsoth & Basse, 20 bls. from Hamburg; Guaranty Trust Co., 13 cs. from Hamburg.

Cover—F. Gerlach, 3 cs. from Bremen; J. J. Shore & Co., 10 cs. from Hamburg; Globe Shipping Co., 65 cs. from Hamburg and 42 cs. Bremen; Hensel, Bruckman & Lorbacher, 24 cs. from Hamburg; Order 5 cs. from Antwerp.

Board—Henry Fuchs & Son, 95 bls. from Gothenburg; Standard Oil Co. of New Jersey, 7,800 bundles from Gothenburg; Treetex Corp., 2,500 bundles from Gothenburg; Van Oppen & Co., 5 cs. from Hamburg; Lagerloef Trading Co., 759 bls. from Kotka; Coty, Inc., 29 cs. from Havre; American Express Co., 92 pkgs. from Havre and 300 cs. Hamburg; Colmar Paper Corp., 10 cs. from Antwerp; Chatham & Phenix National Bank, 4 bls. from Gothenburg; Winsor & Newton, 6 cs. from London; Coy, Disbrow & Co., 6 cs. from Rotterdam; Order, 12 cs. from Bremen and 500 bundles Hamburg.

Miscellaneous—Heemsoth & Basse, 14 bls. from Rotterdam and 4 cs. Hamburg; Keller-Dorian Paper Co., 10 cs. from Havre and 2 cs. Southampton; Japan Paper Co., 12 cs. from Havre, 66 cs. Kobe and 8 cs. Southampton; C. Steiner, 3 cs. from Havre and 9 cs. Bremen; B. F. Drakenfeld & Co., 88 cs. from Liverpool; Japan Import and Export Co., 5 cs. from Kobe; M. Picciotto, 3 cs. from Havre; Simfred & Co., 17 cs. from Havre; Hensel, Bruckman & Lorbacher, 15 cs. from Antwerp; Richardson Bros., 4 cs. from Liverpool; Rohner, Gehrig & Co., 4 cs. from Havre; F. C. Strype, 6 cs. from Genoa; F. Murray Hill, Inc., 3 cs. from Hamburg and 4 cs. Bremen; P. H. Petry & Co., 10 cs. from Bremen and 3 bls. Southampton; Corn Exchange Bank, 25 cs. from Kobe; Van Oppen & Co., 26 cs. from Genoa; M. J. Corbett & Co., 4 cs. from Hamburg; Walker, Goulard, Plehn Co., 2 cs. from Hamburg; S. Gilbert, 2 cs. from Bremen; C. L. Voorhees, 6 cs. from Yokohama; National Freight Forwarding Co., 7 cs. from Hamburg; American Express Co., 27 cs. from Bremen; Atlantic Forwarding Co., 30 cs. from Hamburg; International Forwarding Co., 7 cs. from Hamburg; Globe Shipping Co., 10 cs. from Bremen; Maritime Inspecting and Forwarding Co., 2 cs. from Havre.

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◆ Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 55562—Wrapping paper. Santo Domingo, Dominican Republic. Agency desired.

No. 55510—Writing paper. Cochabamba, Bolivia. Agency and purchase desired.

No. 55567—Old newspapers, clean, unsold, 130,000 kilos annually. Rotterdam, Netherlands. Agency desired.

No. 55500—Paper or cards suitable for manufacture of playing cards. Bombay, India. Agency desired.

No. 55613—Cellophane, metallized papers, cardboards, and tissue fruit wraps. Geneva, Switzerland. Agency and purchase desired.

No. 55677—Caustic soda and bleaching powder. Hamburg, Germany. Purchase desired.

No. 55744—Containers, cardboard or fibre, for lard. Hamburg, Germany. Purchase desired.

No. 55743—Parchment paper. Milan, Italy. Purchase desired.

No. 55742—Writing paper and envelopes. Bogota, Colombia. Purchase desired.

No. 55694—Writing and wrapping paper. Medellin, Colombia. Agency desired.

No. 55891—Bottles, cellophane, for soft drinks. Montreal, Canada. Purchase desired.

No. 55892—Paper cups, plates, spoons, knives and forks, and drinking straws. Johannesburg, South Africa. Agency and purchase desired.

No. 55893—Lining paper, for grain cars. Winnipeg, Canada. Purchase desired.

No. 55894—Wallpaper. Milan, Italy. Agency desired.

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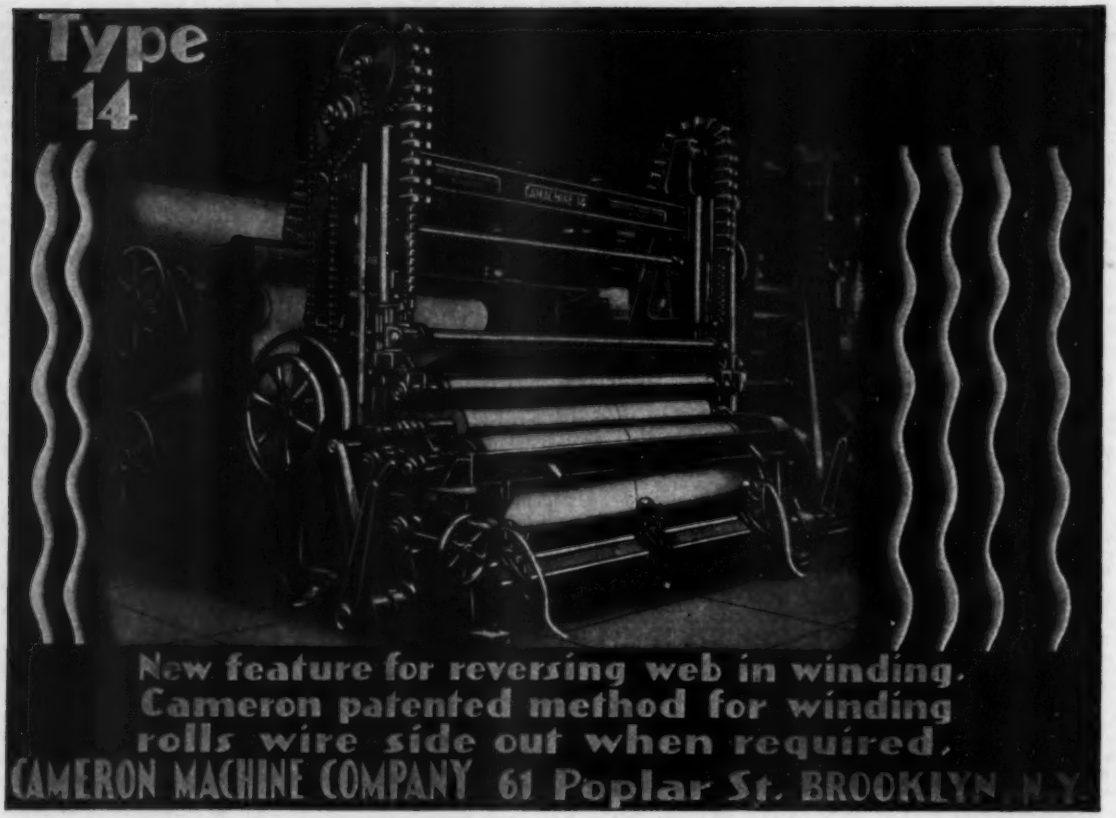
◆ FIRE in the paper stock plant of the L. F. Hicks-P. & A. C. Costarino Company, Inc., at 697-707 Kent avenue, Brooklyn, N. Y., and one of the largest concerns in the metropolitan area handling waste paper, on January 17 did considerable damage to the stock and building. The loss is estimated at about $50,000.

◆ EDWARD DOWDEN, for seven years production manager of Nation's Business, Washington, D. C., has joined the sales organization of the Perkins-Goodwin Company, Inc., paper merchants and mill agents of 551 Fifth avenue, New York, and has taken over the Southern territory.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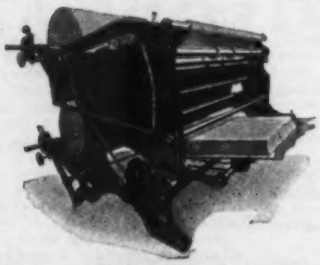

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White sulphite	6–30
Colored rag	11–40
Colored sulphite	6–30
Ledger—	
White rag	12–40
White sulphite	8–30
Colored sulphite	8–30
Colored rag	11–40
Bond—	
White rag	12–40
White sulphite	6–30
Colored sulphite	6–30
Colored rag	11–40
Book—	
No. 1 S. & S. C	4.75– 7.50
Machine finished	4.50– 7.00
English finish	4.50– 7.00
Coated and enameled	6.50– 9.00
Lithograph, M. F.	6.50–11.00
Newsprint—	
Rolls, contract, per ton, delivered New York	53.00–
Rolls, transient, per ton, delivered New York	53.00–
Sheets, per ton, delivered New York	58.00–
Sideruns, per ton, delivered New York	40.00–44.00
Cover stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.65– .70
No. 2 white, 40x36	.55– .65
No. 1 manila, 24x36	.55– .65
Kraft	.65– .70
Wrapping—	
No. 1 kraft	4.25– 5.00
No. 2 kraft	3.25– 3.50
Southern kraft	3.25– 3.50
Boards—	New York and Chicago
News	20.00–25.00
Straw	32.00–35.00
Plain chip	20.00–25.00
White coated chip	35.00–40.00
Manila coated chip	30.00–35.00
Binders' Board	55.00–60.00

◆ Paper Imports Held for Higher Duty

Forty cases, involving importations of paper, on which duty classification was changed as a result of the activities of the Import Committee of the American Paper Industry have been abandoned by the importers, after appeal had been taken from the action of the customs administrative authorities. Among the cases were the following:

Three importations of imitation parchment paper, classified as such, at 3 cents per pound and 15 per cent, had been claimed by importer to be dutiable as wrapping paper at 30 per cent. These cases involve importations in 1925, and after being in the courts for six years have finally been dropped.

One importation of fancy coated and one of metal decorated paper had been classified for duty at rates higher than those which had been claimed by the importers.

One importation of velour paper classified for duty at 5 cents per pound and 15 per cent, had been claimed to be dutiable as hanging paper at 1½ cents per pound and 20 per cent.

Eight importations of envelopes and thirteen of writing papers classified for duty at rates higher than those which had been claimed by importers.

Five importations of fancy papers which had been claimed by importers to be dutiable at rates lower than those set by customs officials.

One importation of paper napkins classified for duty as manufacturers of paper, had been claimed by importer to be dutiable at lower rate as tissue paper.

One importation of drawing paper, classified as such, had been claimed by importer to be dutiable as board at 10 per cent.

One importation of 42-pound supercalendered book paper classified for duty had been claimed by importer to be duty free as standard newsprint.

One importation each of punching paper and presspaper classified for duty as paper not specially provided for, and as press board, had been claimed by importer to be dutiable as board at 10 per cent.

◆ HAMMERMILL Paper Co., Erie, Pa., recently won a decision in the Chancery Division of the English High Court against a ruling of the Registrar of Trade Marks, who had previously allowed the application of Alexander Pirie and Sons, Ltd., Aberdeen, for registration of the trade mark "Abermill Bond." The Hammermill company opposed the registration of this trademark on the grounds that a confusion would arise between it and their own mark, "Hammermill," under which name they do a large business in America and Britain.

◆ THE UNITED STATES Envelope Company, through its general offices at Springfield, Mass., has announced an important development in its Columbian Clasp line. Hereafter this well-known Clasp will be offered in brown and gray kraft as well as the long familiar natural color XXXX stock. The kraft lines will be 32 substance and all three colors will be carried in thirty-three sizes from No. 0, 2½"x4¼" to No. 110, 12"x15½". The announcement also states that Columbian Clasps can be secured at no extra cost in boxes of 100, and with flaps gummed if desired.

◆ MANUFACTURED commodities valued at over a billion dollars were sold last year by more than 50 industries under some plan of guaranteeing the quality to purchasers, according to a report on the first comprehensive survey of the economic importance of certification and labeling activities in the United States, by the American Standards Association.

◆ Binders Board Manufacturers Adopt Standards

After extensive research through the Bureau of Standards, United States Department of Commerce, the Binders Board Manufacturers Association is releasing to the trade standard specifications for binders board. These specifications were developed to cover the present quality of commercial grade binders board and were adopted unanimously by the member mills at the annual meeting of the Binders Board Manufacturers Association on December 18, 1931.

These specifications for binders board have been adopted and issued in order to promote the maintenance of a quality product and will work for the best interests of both producers and consumers. It is understood that revision of these specifications will be made from time to time as further improvement is developed in the quality of binders board.

The board sold by the members of the Binders Board Manufacturers Association is guaranteed to meet these minimum specifications. The association also points out that laminated binders board, which is generally used for heavy binding where a board over .250 inches thick is necessary, is made up of two or more sheets of binders board pasted, that is laminated, together and that the individual sheets used must meet the specifications for binders board. A warning is sounded that laminated binders board must not be confused with the product of the multi-cylinder machine which is commonly known and merchandised as pasted, or laminated, chip board.

◆ Salesmen's Association Luncheon

This year's luncheon of the Salesmen's Association of the Paper Industry at the Hotel Pennsylvania on Tuesday, February 16, promises to be an outstanding event. The Rt. Rev. George Craig Stewart, D.D., S.T.D., L.H.D., bishop of the Episcopal diocese of Chicago, who has been chaplain of the Salesmen's Association since the date of its organization, is to be the principal speaker. Bishop Stewart has a national reputation as an orator and student of current events, gifted not only with charm of diction but a resonant voice, virile presence and commanding eloquence. It is expected that his will be one of the best addresses to be delivered to any commercial body this year.

◆ W. VERNE WILLIAMS, formerly vice president and general manager of the Beckett Paper Co., Hamilton, Ohio, has joined the Howard Paper Co., Urbana, Ohio.

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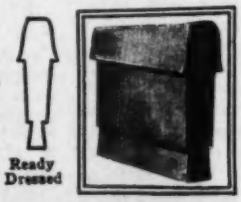

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THE AWAKENING OPPORTUNITY

NEVER have there been such opportunities in industry as at present to gain a march on your competitor. While many are sitting tight, or lying apparently **safely** entrenched, they may be taken by surprise and find that their competitor, who has been alert with new ideas and improvements, has advanced beyond them and captured their strongholds in business.

• A depression generally advances the art or science in manufacturing and production by forcibly bringing out new ideas and improvements not so essential in good times and eliminating the inefficient.

• Do not wait for or expect the return to higher prices. Your success in the past is no guarantee of your future under the new conditions.

• Do not sacrifice quality to meet lower prices. It is not the present low prices; it is your high cost of production that should worry you.

• Higher qualities in product and lower production costs can be obtained by new processes and improved equipment, permitting less waste in material, increased production, more uniform product, better control of operations, lower labor costs, lower power costs, lower maintenance costs and higher all-round efficiencies.

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NEW YORK CITY

◆ A PETITION in bankruptcy has been filed in the Federal Court against the Clifton Paper Mills, of Clifton, N. J., and William G. Fox, of Newark, N. J., and Harry N. Davidson, general manager of the mills, were appointed receivers by the Court. The mill manufactures container, chip and fibre board.

◆ E. A. CHARLTON, a vice president and manager of the manufacturing department of the International Paper Company, has been elected vice president and general manager of the George & Sherrard Paper Company, an I. P. subsidiary in Wellsburg, W. Va., succeeding H. A. Sheesley, resigned, according to an announcement from the New York International headquarters.

◆ ONE OF the largest leases of office space in the Grand Central zone of New York City in some time was announced with the consummation of long-term contracts by the Flintkote Company, manufacturer of building and roofing papers, for more than 22,000 square feet in the Pershing Square Building, 100 East Forty-second street, New York. The Flintkote Company took possession of one and one-half floors on February 1, and moved its Boston headquarters to New York, consolidating the two offices and bringing about 135 members of its administrative offices from Boston. The company formerly occupied small space in the Pershing Square Building for its New York offices.

◆ P. M. LODDENGAARD, formerly purchasing agent for the Continental Paper Company, Bogota, N. J., and who resigned from that position recently, has opened offices in the Equitable Building, 120 Broadway, New York, where he will act as buying representative in waste paper and other raw materials for a number of leading paper and board mills.

◆ WEST VIRGINIA PULP and Paper company and subsidiaries report for the year ended October 31, 1931, net profit of $908,363 after interest, adjustment of inventories, depreciation, depletion, write-down of marketable securities, loss on investments sold, Federal taxes, etc., compared with net profit amounting to $3,350,240 in the preceding fiscal year.

◆ HUGH WRIGHT, manager of the bag division of the Kraft Institute, has resigned to become assistant sales manager of the Southern Kraft Corporation and the Continental Paper and Bag Corporation, subsidiaries of the International Paper Company.

◆ JAMES BURNS, wholesale dealer in paper and paper bags at 498 East 167th street, New York, has made an assignment to H. Arthur Gilman, of 420 Lexington avenue, New York.

◆ BROOKSIDE Card & Paper Company Inc., paper jobber of 158 West Twenty-second street, New York, has assigned to Morris Sirota, of 401 Broadway, New York.

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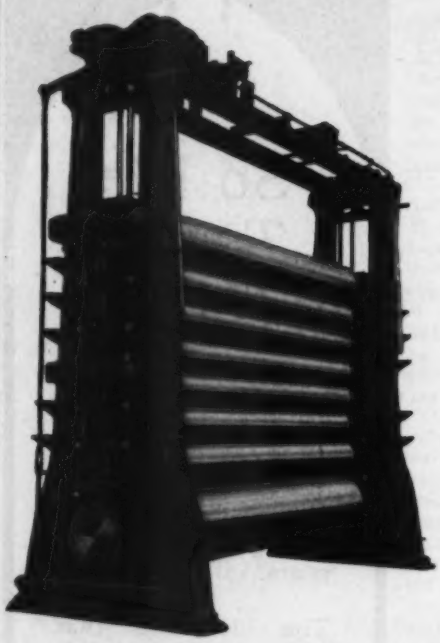

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